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L95 ANSWER 1 OF 20 HCAPLUS COPYRIGHT 2003 ACS

AN 2002:914376 HCAPLUS

DN 138:126864

TI Cationic Polysaccharides for Gene Delivery

AU Azzam, Tony; Raskin, Arthur; Makovitzki, Arik; Brem, Henry; Vierling, Pierre; Lineal, Michal; Domb, Abraham J.

CS Department of Medicinal Chemistry and Natural Products, School of Pharmacy-Faculty of Medicine, Hebrew University, Jerusalem, 91120, Israel

SO Macromolecules (2002), 35(27), 9947-9953

CODEN: MAMOBX; ISSN: 0024-9297

PB American Chemical Society

DT Journal

LA English

CC 63-5 (Pharmaceuticals)

Section cross-reference(s): 33

AB Cationic polysaccharides based on spermine-

dextran conjugates were synthesized and tested as vectors for gene transfection. Dextrans of 10-380 kDa

were oxidized under mild conditions by potassium periodate to obtain the resp. polyaldehydes in 90% overall yield. The oxidized dextrans were reacted by reductive amination with increasing amts. of

spermine, and the efficacy of conjugation between the oligoamine and polysaccharides was studied as a function

of spermine/aldehyde mole ratio, pH, and temp. of medium. The

optimal conjugation yields were obtained at 1.25 mol ratio (spermine/aldehyde groups) and pH 11 at room temp. Under these

conditions, .apprx.2 .mu.mol/mg (spermine/polysaccharide

) conjugation was achieved with 25-30% of the spermine moieties

were conjugated in both sides to form branched polymers. The

water-sol. polymers obtained were interacted with pCMV-GFP plasmid

to form nanoparticles that were introduced to HEK293 and NIH3T3 cells in

vitro for transfection efficacy assessment. Out of about 50

different polymer structures, only spermine-dextran of

6000-8000 Da, spermine content of .apprx.2 .mu.mol/mg, and

degree of branching of 25-30% was active in transfecting

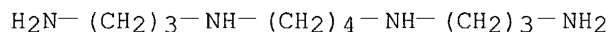
about 50% of the cells while all other polymers were significantly less active.

- ST **cationic polysaccharide gene delivery;**
dextran spermine conjugate prepn gene delivery
- IT Transformation, genetic
 (cationic polysaccharides for gene delivery)
- IT **Polysaccharides, biological studies**
 RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use);
 BIOL (Biological study); PREP (Preparation); USES (Uses)
 (cationic polysaccharides for gene delivery)
- IT Drug delivery systems
 (gene; cationic polysaccharides for gene delivery)
- IT Drug delivery systems
 (nanoparticles; cationic polysaccharides for gene delivery)
- IT **71-44-3DP, reaction product with dextran**
 dicarboxaldehyde, reduced 37317-99-ODP, reaction product with
spermine, reduced
 RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use);
 BIOL (Biological study); PREP (Preparation); USES (Uses)
 (cationic polysaccharides for gene delivery)
- IT **71-44-3, Spermine 9004-54-0, Dextran**
 , reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (cationic polysaccharides for gene delivery)
- IT **37317-99-OP, Dextran dialdehyde**
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (cationic polysaccharides for gene delivery)

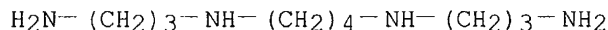
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 (37) Wolfert, M; Hum Gene Ther 1996, V7, P2123 HCAPLUS
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 (39) Zhao, H; Pharm Res 1991, V8, P400 HCAPLUS
 IT 71-44-3DP, reaction product with **dextran**
 dicarboxaldehyde, reduced
 RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use);
 BIOL (Biological study); PREP (Preparation); USES (Uses)
 (cationic polysaccharides for gene
 delivery)
 RN 71-44-3 HCAPLUS
 CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



IT 71-44-3, **Spermine 9004-54-0, Dextran**
 , reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (cationic polysaccharides for gene
 delivery)
 RN 71-44-3 HCAPLUS
 CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 9004-54-0 HCAPLUS
 CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L95 ANSWER 2 OF 20 HCAPLUS COPYRIGHT 2003 ACS
 AN 2002:778838 HCAPLUS
 TI **Cationic polysaccharides** as vectors for **gene**
 delivery
 AU **Domb, Abraham J.**
 CS Medicinal Chemistry and Natural Products - School of Pharmacy - Faculty of
 Medicine, Hebrew University, Jerusalem, 91120, Israel
 SO Abstracts of Papers, 224th ACS National Meeting, Boston, MA, United
 States, August 18-22, 2002 (2002), POLY-673 Publisher: American Chemical
 Society, Washington, D. C.
 CODEN: 69CZPZ
 DT Conference; Meeting Abstract
 LA English
 AB This work describes a versatile **polycation** system based on
oligoamines grafted on natural **polysaccharides** that are
 capable of complexing various **plasmids** and administering them
 into various cell-types in high yield to produce a desired **protein**
 . The developed **biodegradable polycations** are based
 on **spermine**, a natural tetra-amine, conjugated on
dextran polysaccharide via the reductive-
amination method. Different **polycations** were prepd.

starting from various **polysaccharides** and **oligoamines** of 2 to 6 **amino** groups. Although, most of these conjugates formed stable complexes with various **plasmids** as detd. by turbidity expts., only the **dextran-spermine** based conjugate was found to be highly active in **transfecting** a no. of cell-lines in vitro. **Hydrophobization** of the representative **polycation** with natural **fatty** acids (satd. and unsatd.) improved the **transfection** yield in serum rich medium.

L95 ANSWER 3 OF 20 HCAPLUS COPYRIGHT 2003 ACS

AN 2002:643912 HCAPLUS

TI Synthesis and **biodegradation** of **arabinogalactan** sponges prepared by reductive **amination**

AU Ehrenfreund-Kleinman, T.; Gazit, Z.; Gazit, D.; Azzam, T.; Golenser, J.; Domb, A. J.

CS Faculty of Medicine, Hadassah Medical Center, School of Pharmacy, Department of Medicinal Chemistry and Natural Products, The Hebrew University of Jerusalem, Jerusalem, 91120, Israel

SO Biomaterials (2002), 23(23), 4621-4631
CODEN: BIMADU; ISSN: 0142-9612

PB Elsevier Science Ltd.

DT Journal

LA English

CC 63 (Pharmaceuticals)

AB The synthesis of **polysaccharide**-based sponges for the use in tissue engineering was systematically investigated. A comparison study of the **branched polysaccharide arabinogalactan** (AG) and the linear **polysaccharide dextran** in the formation of sponges by the reaction with **diamines** or **polyamines** was conducted. Three AG-based sponges were synthesized from the **crosslinking** reaction with different **amine** mols. The sponges obtained were highly porous, rapidly swelled in water, and were stable in vitro for at least 11 wk in aq. media at 37.degree.C. AG-**chitosan** sponges were chosen as most suitable to serve as **scaffolds** for cell growth in tissue engineering. The biocompatibility in vivo of these sponges was evaluated by histol. staining and non-invasive MRI technique after implantation in BALB/c mice. The sponge evoked an inflammatory response with vascularization of the implant. The inflammatory reaction decreased with time, indicating a healing process.

RE.CNT 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L95 ANSWER 4 OF 20 HCAPLUS COPYRIGHT 2003 ACS
 AN 2002:624972 HCAPLUS

TI **Cationic polysaccharides** as vectors for **gene**
 delivery

AU Azzam, T.; Eliyahu, H.; Raskin, A.; Makovitzki, A.; Barenholz, Y.; Lineal,
 M.; **Domb, Abraham J.**

CS Department of Medicinal Chemistry and Natural Products, School of Pharmacy
 - Faculty of Medicine, The Hebrew University of Jerusalem, Israel

SO Polymer Preprints (American Chemical Society, Division of Polymer
 Chemistry) (2002), 43(2), 671-672
 CODEN: ACPPAY; ISSN: 0032-3934

PB American Chemical Society, Division of Polymer Chemistry

DT Journal; (computer optical disk)

LA English

CC 63 (Pharmaceuticals)

AB Over 300 **cationic** conjugates were prep'd. based on
spermine, a natural **tetramine**, grafted on
dextran that is capable of complexing various **plasmids**
 and administering them into various cells with high yield to produce a
 desired **protein**. All polymers were evaluated for their
transfection activity using various cell types and marker
genes. Although most of the conjugates formed stable complexes
 with **DNAs** as revealed by ethidium bromide quenching assay, but
 only **dextran-spermine** based conjugate was highly
 active in **transfecting** a wide range of cell lines.
Hydrophobization of **dextran-spermine** based
 conjugates enhanced the **transfection** efficiency in-vitro in
 serum-free and serum contg. media.

ST **cationic polysaccharide gene** delivery
spermine dextran polymer conjugate **transfection**

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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L95 ANSWER 5 OF 20 HCAPLUS COPYRIGHT 2003 ACS
 AN 2002:536420 HCAPLUS

DN 137:99004

TI **Cationic polysaccharide** compositions for **gene**
 transfer

IN **Domb, Abraham J.**

PA Polygene Ltd., Israel

SO Eur. Pat. Appl., 34 pp.
 CODEN: EPXXDW

DT Patent

LA English

IC ICM A61K031-715
 ICS C08L005-00; C08L005-02; C08B037-00; A61K048-00; A61K047-48
 CC 63-6 (Pharmaceuticals)
 Section cross-reference(s): 1, 3, 33, 74

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|---|------|----------|-----------------|----------|
| PI | EP 1222926 | A1 | 20020717 | EP 2002-250178 | 20020110 |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR | | | | |
| | US 2002146826 | A1 | 20021010 | US 2002-44538 | 20020110 |
| PRAI | IL 2001-140844 | A | 20010110 | | |

AB A **polycation** compn. comprises (i) a **polysaccharide chain** having an amt. of **saccharide** units ranging from 2 to 2000, (ii) at least one **oligoamine** directly grafted to said **polysaccharide chain** per each segment of 5 **saccharide** units, wherein said **oligoamine** is selected from the group consisting of a linear, **branched** and cyclic alkyl **amine** having at least two **amino** groups, and (iii) at least one further grafted group selected from the group consisting of a **hydrophobic** and an **amphiphilic** group directly grafted to said **polysaccharide chain** per each segment of 50 **saccharide** units, wherein said **hydrophobic** or **amphiphilic** group includes an aliph. chain of at least 4 carbons atoms. For example, **hydrophobized spermine-dextran polycations** gave **transfection** values at 0.2 charge ratio (-/+). **Hydrophobized polycations** (10% or 20% **fatty chain**, mol/mol) gave the best **transfection** efficacy at 0.25 charge ratio (-/+). **Hydrophobized polycations** remarkably increase **transfection**, by at least 2 fold. However, the **fatty acid** side groups, stearate, octanoate, and myristate were less active than **oleate** derivs.

ST **cationic polysaccharide conjugate** prepn **gene transfer**; **polysaccharide oligoamine hydrophobic amphiphilic polymer graft prepn**

IT **Polysaccharides, reactions**
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (acidic; **cationic polysaccharide** compns. for **gene transfer**)

IT **Polyelectrolytes**
 (anionic; **cationic polysaccharide** compns. for **gene transfer**)

IT **Polymer degradation**
 (biol.; **cationic polysaccharide** compns. for **gene transfer**)

IT **Drug delivery systems**
 (capsules, controlled-release; **cationic polysaccharide** compns. for **gene transfer**)

IT **Drug delivery systems**
 (capsules, sustained-release; **cationic polysaccharide** compns. for **gene transfer**)

IT **Lipids, biological studies**
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (cationic and nonionic, **combination** with; **cationic polysaccharide** compns. for **gene transfer**)

IT **Animal**
Gene therapy
 Human
 (cationic **polysaccharide** compns. for **gene therapy**)

IT **Drug delivery systems**

- Plasmid vectors
- Transformation, genetic
 - (**cationic polysaccharide** compns. for **gene transfer**)
- IT **Antisense oligonucleotides**
 - Fatty acids, reactions**
 - Ligands
 - Oligonucleotides**
 - Peptides, reactions**
 - Phospholipids, reactions**
 - Polyamines**
 - Polysaccharides, reactions**
 - Proteins**
 - RL: RCT (Reactant); RACT (Reactant or reagent)
 - (**cationic polysaccharide** compns. for **gene transfer**)
- IT **Electric circuits**
 - Printing (impact)**
 - Printing (nonimpact)**
 - (**cationic polysaccharide** compns. for **gene transfer** and non-medical **applications**)
- IT **Polyelectrolytes**
 - (**cationic; cationic polysaccharide** compns. for **gene transfer**)
- IT **Polysaccharides, biological studies**
 - RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 - (**cationic; cationic polysaccharide** compns. for **gene transfer**)
- IT **Cosmetics**
 - (conditioners; **cationic polysaccharide** compns. for **gene transfer** and non-medical **applications**)
- IT **DNA**
 - RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 - (conjugates; **cationic polysaccharide** compns. for **gene transfer**)
- IT **Drug delivery systems**
 - (controlled-release, matrix for; **cationic polysaccharide** compns. for **gene transfer**)
- IT **Amines, reactions**
 - RL: RCT (Reactant); RACT (Reactant or reagent)
 - (**diamines, condensation products with aldaric acid; cationic polysaccharide** compns. for **gene transfer**)
- IT **Carboxylic acids, reactions**
 - RL: RCT (Reactant); RACT (Reactant or reagent)
 - (dicarboxylic, aldaric, condensation products with diaminoalkanes; **cationic polysaccharide** compns. for **gene transfer**)
- IT **Polyoxyalkylenes, reactions**
 - RL: RCT (Reactant); RACT (Reactant or reagent)
 - (**fatty chain block-contg.; cationic polysaccharide** compns. for **gene transfer**)
- IT **Drug delivery systems**
 - (**gene; cationic polysaccharide** compns. for **gene therapy**)
- IT **Drug delivery systems**
 - (implants, controlled-release, **scaffolds; cationic polysaccharide** compns. for **gene transfer**)
- IT **Drug delivery systems**
 - (implants, sustained-release; **cationic polysaccharide** compns. for **gene transfer**)

- IT **Nucleic acids**
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (poly-; **cationic polysaccharide** compns. for **gene transfer**)
- IT Drug delivery systems
 (sustained-release, matrix for; **cationic polysaccharide** compns. for **gene transfer**)
- IT Animal cell
 Animal tissue
 (targeting; **cationic polysaccharide** compns. for **gene transfer**)
- IT 9002-72-6, Somatotropin
 RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (**cationic polysaccharide** compns. for **gene transfer**)
- IT 57-88-5D, Cholesterol, derivs. 71-44-3, **Spermine** 112-16-3, Lauroyl chloride 112-76-5, Stearoyl chloride 112-77-6, Oleoyl chloride 112-90-3, **Oleylamine** 528-50-7, Cellobiose 605-65-2, Dansyl chloride 687-64-9 6066-82-6, N-Hydroxysuccinimide 7144-08-3, **Cholesteryl** chloroformate 7693-46-1, p-Nitrophenyl chloroformate 9002-98-6 9004-54-0, Dextran, reactions 9004-61-9, Hyaluronic acid 9004-74-4, MPEG 9005-32-7, Alginic acid 9005-80-5, Inulin 9012-76-4, Chitosan 9036-66-2, Arabinogalactan 9057-02-7, Pullulan 114459-62-0
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (**cationic polysaccharide** compns. for **gene transfer**)
- IT 71-44-3DP, **Spermine**, reaction product with **dextran** dialdehyde 14464-30-3P 14464-32-5P 14565-47-0P 19728-66-6P, L-Lysine hydrazide 22102-92-7P 37317-99-0DP, **Dextran** dialdehyde, reaction product with **spermine** 37317-99-0P, **Dextran** dialdehyde 42014-50-6P 69888-86-4P 69888-88-6P 81480-40-2P 124661-64-9DP, reaction product with **dextran-spermine** conjugates 124661-64-9P 159592-24-2P 359847-18-0P 442515-52-8P 442515-53-9P 442515-54-0P 442515-55-1P 442515-56-2P 442515-57-3P 442515-58-4P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (**cationic polysaccharide** compns. for **gene transfer**)
- IT 71-44-3DP, **Spermine**, reaction product with oxidized **dextran** 112-90-3DP, **Oleylamine**, reaction product with oxidized **dextran** 124-20-9DP, **Spermidine**, conjugates with **chitosan** 9004-61-9DP, **Hyaluronic acid**, **polysaccharide** conjugates 9005-49-6DP, Heparin, **polysaccharide** conjugates 9012-76-4DP, **Chitosan**, conjugates with **oligoamines** 9036-66-2DP, **Arabinogalactan**, reaction products with **polysaccharides** 14464-30-3DP, reaction product with **dextran-spermine** conjugates 14464-32-5DP, reaction product with **dextran-spermine** conjugates 14565-47-0DP, reaction product with **dextran-spermine** conjugates 22102-92-7DP, reaction product with **dextran-spermine** conjugates 33008-06-9DP, Dansyl hydrazine, reaction product with **dextran-spermine** conjugates 42014-50-6DP, reaction product with **dextran-spermine** conjugates 69888-86-4DP, reaction product with **dextran-spermine** conjugates 69888-88-6DP, reaction product with **dextran-spermine** conjugates

81480-40-2DP, reaction product with **dextran-spermine** conjugates 159592-24-2DP, reaction product with **dextran-spermine** conjugates 359847-18-ODP, reaction product with **dextran-spermine** conjugates 442515-53-9DP, reaction product with **dextran-spermine** conjugates
 RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(**cationic polysaccharide** compns. for **gene** transfer)

IT 25322-68-3, Poly(ethylene glycol) 25322-69-4, Poly(propylene glycol)

RL: RCT (Reactant); RACT (Reactant or reagent)

(**fatty chain block-contg.**; **cationic polysaccharide** compns. for **gene** transfer)

IT 71-44-3DP, **Spermine**, quaternized or conjugates with **chitosan**

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(**hydrophilic head group-contg.**; **cationic polysaccharide** compns. for **gene** transfer)

IT 56-87-1, **L-Lysine**, biological studies 70-26-8, **L-Ornithine** 74-79-3, **L-Arginine**, biological studies

RL: BSU (Biological study, unclassified); BIOL (Biological study)

(**peptides** contg.; **cationic polysaccharide** compns. for **gene** transfer)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) A Med Sibe Clinical Exper Medicine; RU 2027190 C 1995 HCAPLUS

(2) Autenshlyus, A; V1995(33)

(3) Domb, A; WO 0107486 A 2001 HCAPLUS

(4) Nippon Oils & Fats Co Ltd; EP 0370810 A 1990 HCAPLUS

(5) Univ Iowa Res Found; WO 9746223 A 1997 HCAPLUS

IT 71-44-3, **Spermine** 528-50-7, **Cellobiose**

9002-98-6 9004-54-0, **Dextran**, reactions

9004-61-9, **Hyaluronic acid** 9005-32-7

, **Alginic acid** 9005-80-5, **Inulin**

9012-76-4, **Chitosan** 9036-66-2,

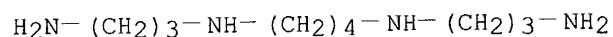
Arabinogalactan 9057-02-7, **Pullulan**

RL: RCT (Reactant); RACT (Reactant or reagent)

(**cationic polysaccharide** compns. for **gene** transfer)

RN 71-44-3 HCAPLUS

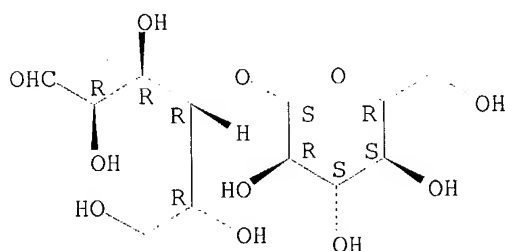
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 528-50-7 HCAPLUS

CN D-Glucose, 4-O-.beta.-D-glucopyranosyl- (6CI, 9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 9002-98-6 HCAPLUS
CN Aziridine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 151-56-4
CMF C2 H5 N



RN 9004-54-0 HCAPLUS
CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9004-61-9 HCAPLUS
CN Hyaluronic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9005-32-7 HCAPLUS
CN Alginic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9005-80-5 HCAPLUS
CN Inulin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9012-76-4 HCAPLUS
CN Chitosan (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9036-66-2 HCAPLUS
CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

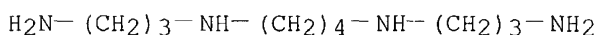
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9057-02-7 HCAPLUS
CN Pullulan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 71-44-3DP, Spermine, reaction product with
dextran dialdehyde
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(cationic polysaccharide compns. for gene
transfer)

RN 71-44-3 HCAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



IT 124-20-9DP, Spermidine, conjugates with chitosan
9004-61-9DP, Hyaluronic acid,
polysaccharide conjugates 9012-76-4DP, Chitosan
, conjugates with oligoamines 9036-66-2DP,
Arabinogalactan, reaction products with polysaccharides
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological
study); PREP (Preparation); USES (Uses)

(cationic polysaccharide compns. for gene transfer)

RN 124-20-9 HCAPLUS

CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 9004-61-9 HCAPLUS

CN Hyaluronic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9012-76-4 HCAPLUS

CN Chitosan (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9036-66-2 HCAPLUS

CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

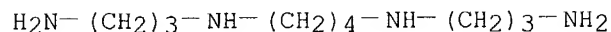
IT 71-44-3DP, Spermine, quaternized or conjugates with chitosan

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(hydrophilic head group-contg.; cationic polysaccharide compns. for gene transfer)

RN 71-44-3 HCAPLUS

CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



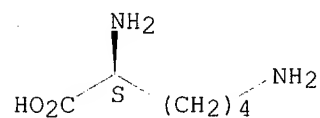
IT 56-87-1, L-Lysine, biological studies 70-26-8, L-Ornithine 74-79-3, L-Arginine, biological studies

RL: BSU (Biological study, unclassified); BIOL (Biological study) (peptides contg.; cationic polysaccharide compns. for gene transfer)

RN 56-87-1 HCAPLUS

CN L-Lysine (9CI) (CA INDEX NAME)

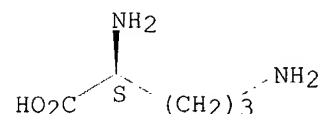
Absolute stereochemistry.



RN 70-26-8 HCAPLUS

CN L-Ornithine (9CI) (CA INDEX NAME)

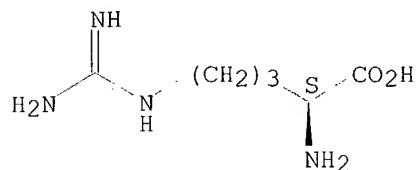
Absolute stereochemistry.



RN 74-79-3 HCAPLUS

CN L-Arginine (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L95 ANSWER 6 OF 20 HCAPLUS COPYRIGHT 2003 ACS
 AN 2002:350566 HCAPLUS
 DN 138:112169
 TI Highly active **polysaccharide** based **polycations** for
DNA cell transfection
 AU Azzam, T.; Makovitzki, A.; Eliyahu, H.; Raskin, A.; Linial, M.; Bernholz,
 Y.; Domb, A. J.
 CS Department of Medicinal Chemistry and Natural Products, The Hebrew
 University, Jerusalem, 91120, Israel
 SO Proceedings - 28th International Symposium on Controlled Release of
 Bioactive Materials and 4th Consumer & Diversified Products Conference,
 San Diego, CA, United States, June 23-27, 2001 (2001), Volume 2, 1187-1188
 Publisher: Controlled Release Society, Minneapolis, Minn.
 CODEN: 69CNY8
 DT Conference
 LA English
 CC 63-5 (Pharmaceuticals)
 AB A new class of **polycations** based on **oligoamine**
 conjugated on natural **polysaccharides** have been synthesized and
 tested for their activity as **gene carriers**. The
transfection efficiency was evaluated in-vitro in a few cell types
 using several **plasmid marker genes**. From about 100
 different conjugate derivs. only a few showed to be effective in
gene transfection. The most effective
polycation was **spermine**, a natural alkyl tetra-
amine, grafted on **dextran**.
 ST targetted drug delivery **polycation polysaccharide**
transfection gene therapy
 IT Animal cell line
 (3T3; highly active **polysaccharide** based **polycations**
 for **DNA cell transfection**)
 IT Animal cell line
 (Hek 293; highly active **polysaccharide** based
polycations for **DNA cell transfection**)
 IT **Gene therapy**
 Human
 Transformation, genetic
 (highly active **polysaccharide** based **polycations** for
DNA cell transfection)
 IT **DNA**
Polysaccharides, biological studies
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (highly active **polysaccharide** based **polycations** for
DNA cell transfection)
 IT **Cations**
 (polyvalent; highly active **polysaccharide** based
polycations for **DNA cell transfection**)
 IT Drug delivery systems
 (targetted; highly active **polysaccharide** based
polycations for **DNA cell transfection**)

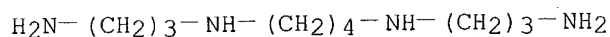
IT 71-44-3D, Spermine, conjugate with
 arabinogalactan, dextran or pullulan
 124-20-9D, Spermidine, conjugate with dextran
 9002-98-6D, conjugate with arabinogalactan or
 dextran 9004-54-0D, Dextran, conjugate with
 spermine, polyethyleneimine, spermidine
 9036-66-2D, Arabinogalactan, conjugate with
 spermine or polyethyleneimine 9057-02-7D,
 Pullulan, conjugate with spermine 26545-55-1,
 Propanediamine
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (highly active polysaccharide based polycations for
 DNA cell transfection)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD

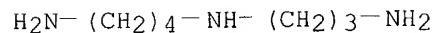
RE
 (1) Domb, A; Technomic 1999, V2, P1 HCAPLUS
 (2) Israel, Z; Poly Adc Tech 1998, V9, P799 HCAPLUS
 (3) Marcel, T; Human Gene Ther 1997, P775 HCAPLUS

IT 71-44-3D, Spermine, conjugate with
 arabinogalactan, dextran or pullulan
 124-20-9D, Spermidine, conjugate with dextran
 9002-98-6D, conjugate with arabinogalactan or
 dextran 9004-54-0D, Dextran, conjugate with
 spermine, polyethyleneimine, spermidine
 9036-66-2D, Arabinogalactan, conjugate with
 spermine or polyethyleneimine 9057-02-7D,
 Pullulan, conjugate with spermine 26545-55-1,
 Propanediamine
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (highly active polysaccharide based polycations for
 DNA cell transfection)

RN 71-44-3 HCAPLUS
 CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 124-20-9 HCAPLUS
 CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 9002-98-6 HCAPLUS
 CN Aziridine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 151-56-4
 CMF C2 H5 N



RN 9004-54-0 HCAPLUS
 CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9036-66-2 HCAPLUS
 CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9057-02-7 HCAPLUS
 CN Pullulan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 26545-55-1 HCAPLUS
 CN Propanediamine (8CI, 9CI) (CA INDEX NAME)

H₃C-CH₂-CH₃

2 [D1--NH₂]

L95 ANSWER 7 OF 20 HCAPLUS COPYRIGHT 2003 ACS

AN 2002:246129 HCAPLUS

DN 137:299706

TI Nanoparticles and polymeric vesicles from new **poly-L-lysine** based **amphiphiles**

AU Uchegbu, Ijeoma F.; Tetley, Laurence; Wang, Wei

CS Department of Pharmaceutical Sciences, University of Strathclyde, Glasgow, G4 0NR, UK

SO Materials Research Society Symposium Proceedings (2001), 662(Biomaterials for Drug Delivery and Tissue Engineering), NN6.8/1-NN6.8/6
 CODEN: MRSPDH; ISSN: 0272-9172

PB Materials Research Society

DT Journal

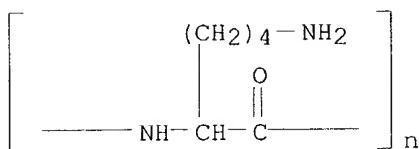
LA English

CC 63-5 (Pharmaceuticals)

AB Nanoparticles and polymeric vesicles for drug delivery and other industrial **applications** have been prep'd. by the probe **sonication** of **poly-L-lysine** graft copolymer **amphiphiles** in aq. media. The **amphiphiles**, which have a **poly-L-lysine** backbone and varied levels of both hydrophilic methoxypolyethylene glycol (Mw .apprx. 5,000) and **hydrophobic** palmitoyl pendant groups, were prep'd. from 2 different mol. wt. **poly-L-lysine** hydrobromide samples (Mw .apprx.4,000 and .apprx.20,000 resp.). **Poly-L-lysine** based **amphiphilic** polymers (PLPs) were characterized using light scattering, 1H NMR and an assay for the level of free amino groups. Steric factors appear to limit the final level of **lysine** group **modification** that can be achieved and even an excess amt. of grafting reactants still resulted in the prodn. of polymers in which 22 - 26 mol% of the **lysine** terminal amino groups remain unsubstituted. Polymeric unilamellar vesicles (220 - 570nm in diam.) imaged by **electron** microscopy were produced by probe **sonication** of PLP, **cholesterol**. Vesicle formation was possible over a narrow spectrum of polymer architecture and was favored by a low mol. wt. and a low level of palmitoyl substitution. Probe **sonication** of an aq. dispersion of PLP samples resulted in the prodn. of stable nanoparticles (80 - 170nm in diam.) as imaged by **electron** microscopy. Nanoparticles were able to encapsulate the hydrophilic fluorophore fluorescein isothiocyanate (FITC)-**dextran** and encapsulation increased as the level of unreacted **lysine** terminal amino groups in PLP increased thus increasing as the level of hydrophilic domains increased. The size of both the nanoparticles and the

vesicles was directly influenced by the mol. wt. of PLP. PLPs of mol. wt. 32,000 - 48,000 and 89,000 - 140,000 resulted in nanoparticles of 85 - 114 nm and 125 - 167 nm in diam. resp. and PLP of mol. wt. 25,000 and 89,000 gave rise to polymeric vesicles of 252 nm and 570 nm in diam. resp.

- ST **polylysine** PEG palmitoyl vesicle nanoparticle
- IT Drug delivery systems
(liposomes; nanoparticles and polymeric vesicles from **poly-L-lysine-based amphiphiles**)
- IT Encapsulation
(nanoparticles and polymeric vesicles from **poly-L-lysine-based amphiphiles: FITC-dextran encapsulation**)
- IT Drug delivery systems
(nanoparticles; nanoparticles and polymeric vesicles from **poly-L-lysine-based amphiphiles**)
- IT 57-88-5, **Cholesterol**, biological studies 14464-31-4D,
polylysine amide derivs. 38000-06-5D,
palmitamide, polyethylene glycol **amide** derivs.
124661-64-9D, **polylysine amide** derivs.
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(nanoparticles and polymeric vesicles from **poly-L-lysine-based amphiphiles**)
- IT 25104-18-1, **Poly-L-lysine** 38000-06-5
, **Poly-L-lysine**
RL: RCT (Reactant); RACT (Reactant or reagent)
(nanoparticles and polymeric vesicles from **poly-L-lysine-based amphiphiles**)
- IT 60842-46-8, **FITC-dextran**
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(nanoparticles and polymeric vesicles from **poly-L-lysine-based amphiphiles: FITC-dextran encapsulation**)
- RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
- RE
- (1) Asayama, S; Bioconjug Chem 1998, V9, P476 HCAPLUS
 - (2) Brown, M; Bioconjug Chem in press
 - (3) Choi, J; Bioconjug Chem 1999, V10, P62 HCAPLUS
 - (4) Katayose, S; Bioconjug Chem 1997, V8, P702 HCAPLUS
 - (5) Snyder, S; Anal Biochem 1975, V64, P284 HCAPLUS
 - (6) Toncheva, V; Biochim Biophys Acta 1998, V1380, P354 HCAPLUS
 - (7) Uchegbu, I; J Pharm Pharmacol 1998, V50, P453 HCAPLUS
 - (8) Wang, W; Langmuir 2000, V16, P7859 HCAPLUS
 - (9) Wang, W; Langmuir in press
 - (10) Zhou, X; Biochim Biophys Acta 1991, V1065, P8 HCAPLUS
- IT 38000-06-5D, **palmitamide**, polyethylene glycol **amide** derivs.
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(nanoparticles and polymeric vesicles from **poly-L-lysine-based amphiphiles**)
- RN 38000-06-5 HCAPLUS
- CN Poly[imino[(1S)-1-(4-aminobutyl)-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)



IT 25104-18-1, Poly-L-lysine 38000-06-5

, Poly-L-lysine

RL: RCT (Reactant); RACT (Reactant or reagent)

(nanoparticles and polymeric vesicles from poly-L-lysine-based amphiphiles)

RN 25104-18-1 HCAPLUS

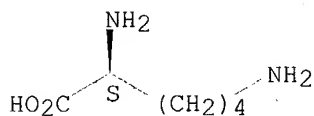
CN L-Lysine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 56-87-1

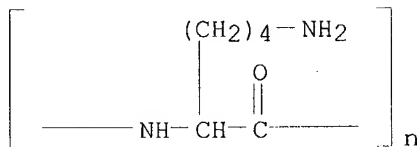
CMF C6 H14 N2 O2

Absolute stereochemistry.



RN 38000-06-5 HCAPLUS

CN Poly[imino[(1S)-1-(4-aminobutyl)-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)



L95 ANSWER 8 OF 20 HCAPLUS COPYRIGHT 2003 ACS

AN 2002:237763 HCAPLUS

DN 137:10872

TI Polysaccharide-Oligoamine Based Conjugates for Gene Delivery

AU Azzam, Tony; Eliyahu, Hagit; Shapira, Libi; Linial, Michal; Barenholz, Yechezkel; Domb, Abraham J.

CS Department of Medicinal Chemistry and Natural Products, School of Pharmacy, Faculty of Medicine, The Hebrew University, Jerusalem, 91120, Israel

SO Journal of Medicinal Chemistry (2002), 45(9), 1817-1824
CODEN: JMCMAR; ISSN: 0022-2623

PB American Chemical Society

DT Journal

LA English

CC 63-6 (Pharmaceuticals)

Section cross-reference(s): 3, 33

AB This work describes a versatile and universal polycation system based on oligoamines grafted on natural polysaccharides that is capable of complexing various plasmids and administering them into various cells in high yield to produce a desired protein

. These **polycations** are expected to better meet the requirements for effective complexation and delivery of **plasmid** or an **antisense** and to **biodegrade** into nontoxic components at a controlled rate. The developed **biodegradable polycations** are based on **spermine**, a natural **tetramine**, conjugated to **dextran** or **arabinogalactan**. These **polycations** were prep'd. by reductive **amination** of oxidized **polysaccharides** with the desired **oligoamines**. The Schiff base conjugates thus obtained were reduced to the stable **amine** conjugates by sodium borohydride. Over 300 different **polycations** were prep'd. starting from various **polysaccharides** and **oligoamines**, mainly **oligoamines** of 2-4 **amino** groups. Although most of these conjugates formed stable complexes with various **plasmids** as det'd. by turbidity expts., only a few **polycations** were active in **transfecting** cells. Thus, the structure of the **polycation** plays a significant role in the **transfection** activity of **polycations**.

ST **polysaccharide oligoamine conjugate gene**
delivery prep'n

IT Animal cell line
(3T3; **polysaccharide-oligoamine-based** conjugates
for **gene** delivery)

IT Animal cell line
(EPC; **polysaccharide-oligoamine-based** conjugates
for **gene** delivery)

IT Animal cell line
(Hek 293; **polysaccharide-oligoamine-based**
conjugates for **gene** delivery)

IT **Polyamines**
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological
study); PREP (Preparation); USES (Uses)
(conjugates with **dextran** aldehyde; **polysaccharide-**
oligoamine-based conjugates for **gene** delivery)

IT **Amines**, biological studies
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological
study); PREP (Preparation); USES (Uses)
(conjugates, with **dextran** aldehyde; **polysaccharide-**
oligoamine-based conjugates for **gene** delivery)

IT Drug delivery systems

Gene therapy

Human

Molecular weight distribution

Oxidation

Plasmid vectors

Transformation, genetic

(**polysaccharide-oligoamine-based** conjugates for
gene delivery)

IT 9004-54-0, **Dextran**, reactions 9036-66-2,
Arabinogalactan

RL: RCT (Reactant); RACT (Reactant or reagent)
(**polysaccharide-oligoamine-based** conjugates for
gene delivery)

IT 37317-99-ODP, reaction product with **oligamines**, reduced
37317-99-OP, **Dextran** dialdehyde

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)

(**polysaccharide-oligoamine-based** conjugates for
gene delivery)

IT 71-44-3DP, **Spermine**, reaction product with
dextran dialdehyde, reduced 107-15-3DP, 1,2-
Ethanediamine, reaction product with **dextran** dialdehyde,
reduced 109-76-2DP, 1,3-Propanediamine, reaction

product with **dextran** dialdehyde, reduced **110-60-1DP**,
1,4-Butanediamine, reaction product with **dextran**
dialdehyde, reduced **110-70-3DP**, reaction product with **dextran**
dialdehyde, reduced **111-40-0DP**, reaction product with
dextran dialdehyde, reduced **124-09-4DP**, **1,6-**
Hexanediamine, reaction product with **dextran** dialdehyde,
reduced **124-20-9DP**, **Spermidine**, reaction product with
dextran dialdehyde, reduced **373-44-4DP**, **1,8-**
Octanediamine, reaction product with **dextran** dialdehyde,
reduced **929-59-9DP**, reaction product with **dextran** dialdehyde,
reduced **4605-14-5DP**, reaction product with **dextran**
dialdehyde, reduced **4741-99-5DP**, reaction product with
dextran dialdehyde, reduced **9002-98-6DP**, Aziridine
homopolymer, reaction products with **dextran** dialdehyde, reduced
9036-66-2DP, **Arabinogalactan**, oxidized, reaction
products with **oligoamines**, reduced **10563-26-5DP**,
reaction product with **dextran** dialdehyde, reduced
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological
study); PREP (Preparation); USES (Uses)

(polysaccharide-oligoamine-based conjugates for
gene delivery)

RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Abdllah, B; Hum Gene Ther 1996, V7, P1947
- (2) Anderson, W; Science 1992, V256, P808 MEDLINE
- (3) Aoki, K; Cancer Res 1995, V55, P3810 HCAPLUS
- (4) Belinska, A; Nucleic Acids Res 1996, V24, P2176
- (5) Boussif, O; Gene Ther 1996, V3, P1074 HCAPLUS
- (6) Carter, A; J Polym Sci, Part A: Polym Chem 2000, V38(21), P3892 HCAPLUS
- (7) Crystal, R; Science 1995, V270, P404 HCAPLUS
- (8) de Smedt, S; Pharm Res 2000, V17(2), P113 HCAPLUS
- (9) Domb, A; Polymers in Gene Therapy:Frontiers in Biological Polymer
Application 1999, V2, P1 HCAPLUS
- (10) Fakhrai, H; Proc Natl Acad Sci U S A 1996, V93, P2909 HCAPLUS
- (11) Groman, E; Bioconjugate Chem 1994, V5, P547 HCAPLUS
- (12) Huang, L; Nonviral Vectors for Gene Therapy, Chapter 1 1999, P3 HCAPLUS
- (13) Hui, Z; Pharm Res 1991, V8, P400
- (14) Ioan, C; Macromolecules 2000, V33(15), P5730 HCAPLUS
- (15) Israel, Z; Polym Adv Technol 1998, V9(10-11), P799 HCAPLUS
- (16) Koltover, I; Science 1998, V281, P78 HCAPLUS
- (17) Larsen, C; Dextran prodrugs 1990
- (18) Ledley, F; Hum Gene Ther 1995, V6(9), P1129 HCAPLUS
- (19) Leong, K; J Controlled Release 1998, V53(1-3), P183 HCAPLUS
- (20) Lucas, P; J Drug Targeting 1999, V7(2), P143 HCAPLUS
- (21) Marcel, T; Hum Gene Ther 1997, V8(6), P775 HCAPLUS
- (22) Roth, J; J Natl Cancer Inst 1997, V89(1), P21 MEDLINE
- (23) Saleh, M; J Natl Cancer Inst 1999, V91(5), P438 MEDLINE
- (24) Siiman, O; Bioconjugate Chem 1999, V10, P1090 HCAPLUS
- (25) Snyder, S; Anal Biochem 1975, V64, P284 HCAPLUS
- (26) Spear, M; J Neurovirol 1998, V4(2), P133 HCAPLUS
- (27) Takamiya, Y; J Neurosci Res 1992, V33(3), P493 HCAPLUS
- (28) Tang, M; Gene Ther 1997, V4, P823 HCAPLUS
- (29) Vanderkerken, S; J Bioact Compat Polym 2000, V15(2), P115 HCAPLUS
- (30) Wolfert, M; Bioconjugate Chem 1999, V10, P993 HCAPLUS
- (31) Yamaoka, T; Chem Lett 1998, V11, P1171

IT 9004-54-0, **Dextran**, reactions 9036-66-2,

Arabinogalactan

RL: RCT (Reactant); RACT (Reactant or reagent)

(polysaccharide-oligoamine-based conjugates for
gene delivery)

RN 9004-54-0 HCAPLUS

CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9036-66-2 HCAPLUS

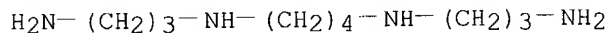
CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 71-44-3DP, **Spermine**, reaction product with **dextran** dialdehyde, reduced 107-15-3DP, 1,2-**Ethanediamine**, reaction product with **dextran** dialdehyde, reduced 109-76-2DP, 1,3-**Propanediamine**, reaction product with **dextran** dialdehyde, reduced 110-60-1DP, 1,4-**Butanediamine**, reaction product with **dextran** dialdehyde, reduced 111-40-0DP, reaction product with **dextran** dialdehyde, reduced 124-09-4DP, 1,6-**Hexanediamine**, reaction product with **dextran** dialdehyde, reduced 124-20-9DP, **Spermidine**, reaction product with **dextran** dialdehyde, reduced 4605-14-5DP, reaction product with **dextran** dialdehyde, reduced 4741-99-5DP, reaction product with **dextran** dialdehyde, reduced 9002-98-6DP, Aziridine homopolymer, reaction products with **dextran** dialdehyde, reduced 9036-66-2DP, **Arabinogalactan**, oxidized, reaction products with **oligoamines**, reduced 10563-26-5DP, reaction product with **dextran** dialdehyde, reduced
 RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (polysaccharide-oligoamine-based conjugates for gene delivery)

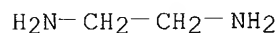
RN 71-44-3 HCAPLUS

CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



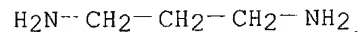
RN 107-15-3 HCAPLUS

CN 1,2-Ethanediamine (9CI) (CA INDEX NAME)



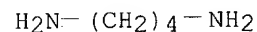
RN 109-76-2 HCAPLUS

CN 1,3-Propanediamine (6CI, 8CI, 9CI) (CA INDEX NAME)



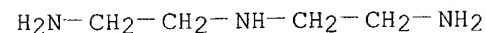
RN 110-60-1 HCAPLUS

CN 1,4-Butanediamine (8CI, 9CI) (CA INDEX NAME)



RN 111-40-0 HCAPLUS

CN 1,2-Ethanediamine, N-(2-aminoethyl)- (9CI) (CA INDEX NAME)



RN 124-09-4 HCAPLUS

CN 1,6-Hexanediamine (7CI, 8CI, 9CI) (CA INDEX NAME)

$\text{H}_2\text{N}-(\text{CH}_2)_6-\text{NH}_2$

RN 124-20-9 HCAPLUS

CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$\text{H}_2\text{N}-(\text{CH}_2)_4-\text{NH}-(\text{CH}_2)_3-\text{NH}_2$

RN 4605-14-5 HCAPLUS

CN 1,3-Propanediamine, N,N'-bis(3-aminopropyl)- (9CI) (CA INDEX NAME)

$\text{H}_2\text{N}-(\text{CH}_2)_3-\text{NH}-(\text{CH}_2)_3-\text{NH}-(\text{CH}_2)_3-\text{NH}_2$

RN 4741-99-5 HCAPLUS

CN 1,3-Propanediamine, N,N'-bis(2-aminoethyl)- (8CI, 9CI) (CA INDEX NAME)

$\text{H}_2\text{N}-\text{CH}_2-\text{CH}_2-\text{NH}-(\text{CH}_2)_3-\text{NH}-\text{CH}_2-\text{CH}_2-\text{NH}_2$

RN 9002-98-6 HCAPLUS

CN Aziridine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 151-56-4

CMF C2 H5 N



RN 9036-66-2 HCAPLUS

CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 10563-26-5 HCAPLUS

CN 1,3-Propanediamine, N,N''-1,2-ethanediylbis- (9CI) (CA INDEX NAME)

$\text{H}_2\text{N}-(\text{CH}_2)_3-\text{NH}-\text{CH}_2-\text{CH}_2-\text{NH}-(\text{CH}_2)_3-\text{NH}_2$

L95 ANSWER 9 OF 20 HCAPLUS COPYRIGHT 2003 ACS

AN 2002:89175 HCAPLUS

DN 137:206387

TI Synthesis and characterization of novel water soluble amphotericin B-arabinogalactan conjugates

AU Ehrenfreund-Kleinman, T.; Azzam, T.; Falk, R.; Polacheck, I.; Golenser, J.; Domb, A. J.

CS Department of Medicinal Chemistry and Natural Products, The Hebrew University of Jerusalem, Faculty of Medicine, School of Pharmacy, Jerusalem, 91120, Israel

SO Biomaterials (2002), 23(5), 1327-1335
CODEN: BIMADU; ISSN: 0142-9612
PB Elsevier Science Ltd.
DT Journal
LA English
CC 63-6 (Pharmaceuticals)
Section cross-reference(s): 1
AB The coupling of amphotericin B (AmB), a water-insol. antifungal agent, to **arabinogalactan** (AG) via an **imine** or **amine** bond was systematically investigated. AG was oxidized using potassium periodate, purified from the oxidizing agent using ion-exchange chromatog., and reacted with AmB to form the Schiff base. The Schiff base was reduced to the **amine** using borohydride. All reactions took place in aq. media. The purifn. of the oxidized AG from the oxidizing agent was essential to prevent oxidative degrdn. of AmB at the coupling step. The authors investigated the effects of AmB to AG ratio, buffer type, and reaction pH on the reaction yield, mol. wt., conjugate activity against pathogenic yeast and hemolytic activity. The optimum coupling conditions were buffer borate 0.1 m, pH 11 at room temp. for 48 h. Lower toxicity in vivo was achieved by using low-pressure gel permeation chromatog. and applying the soln. of AmB-AG conjugate through a Sephadex column. Both **amine** and **imine** AmB-AG conjugates were sol. in water and exhibited improved stability in aq. solns. as compared to the unbound drug. The conjugates showed comparable min. inhibitory concn. (MIC) values against *Candida albicans*. The conjugates were about 60 times less hemolytic against sheep erythrocytes than the free drug, and about 40 times less toxic in BALB/c mice.
ST amphotericin B **arabinogalactan** conjugate fungicide injection
IT Drug delivery systems
(injections; synthesis and characterization of novel water sol. amphotericin B-**arabinogalactan** conjugates)
IT *Candida albicans*
Erythrocyte
Fungicides
Hemolysis
(synthesis and characterization of novel water sol. amphotericin B-**arabinogalactan** conjugates)
IT 1397-89-3DP, Amphotericin B, **arabinogalactan** conjugates
9036-66-2DP, **Arabinogalactan**, amphotericin B conjugates
RL: ADV (Adverse effect, including toxicity); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(synthesis and characterization of novel water sol. amphotericin B-**arabinogalactan** conjugates)
IT 9036-66-2DP, **Arabinogalactan**, amphotericin B conjugates
RL: ADV (Adverse effect, including toxicity); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(synthesis and characterization of novel water sol. amphotericin B-**arabinogalactan** conjugates)
RN 9036-66-2 HCAPLUS
CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L95 ANSWER 10 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN 2001:78427 HCAPLUS
DN 134:152626
TI A **biodegradable polycation** composition for delivery of an **anionic macromolecule** in **gene therapy**
IN Domb, Abraham J.
PA Polygene Ltd., Israel
SO PCT Int. Appl., 66 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C08B037-00

ICS A61K047-36; A61K048-00

CC 63-5 (Pharmaceuticals)

Section cross-reference(s): 33, 44

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|--|------|----------|-----------------|----------|
| PI | WO 2001007486 | A1 | 20010201 | WO 2000-IL420 | 20000718 |
| | W: | | | | |
| | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| | RW: | | | | |
| | GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| | EP 1200481 | A1 | 20020502 | EP 2000-946249 | 20000718 |
| | R: | | | | |
| | AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL | | | | |
| | JP 2003505473 | T2 | 20030212 | JP 2001-512568 | 20000718 |
| PRAI | IL 1999-131074 | A | 19990723 | | |
| | WO 2000-IL420 | W | 20000718 | | |

AB The present invention provides a **biodegradable polycation** compn. for delivery of an **anionic** macromol., comprising a **polysaccharide chain** having an amt. of **saccharide** units ranging from 2 to 2000 and at least one grafted **oligoamine** per 5 **saccharide** units, wherein said **oligoamine** is selected from the group consisting of a linear, branched and cyclic alkyl **amine** having at least two **amino** groups, examples of said **anionic** macromols. are **plasmid**, an **oligonucleotide**, an **antisense**, a **peptide**, a **protein**, a **polysaccharide** and combinations thereof, and said **polysaccharide chains** are selected from the group consisting of **dextrans**, **arabinogalactan**, **pullulan**, **cellulose**, **cellobiose**, **inulin**, **chitosan**, **alginates** and **hyaluronic acid**.

ST **gene therapy polysaccharide**
polyamine graft anionic macromol delivery;
biodegradable polycation gene therapy
anionic macromol delivery; oligoamine graft
polysaccharide gene therapy
biodegradable polycation; plasmid delivery
gene therapy biodegradable polycation
; oligonucleotide delivery gene therapy
biodegradable polycation; antisense delivery
gene therapy biodegradable polycation
; peptide delivery gene therapy
biodegradable polycation; protein delivery
gene therapy biodegradable polycation
; dextran graft biodegradable polycation
gene therapy; chitosan graft
biodegradable polycation gene therapy
; alginate graft biodegradable polycation
gene therapy; hyaluronic acid graft
biodegradable polycation gene therapy
; arabinogalactan graft biodegradable
polycation gene therapy; polycation
gene therapy; pullulan graft

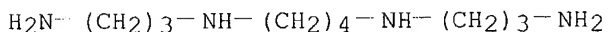
- biodegradable polycation gene therapy
; cellobiose graft biodegradable polycation
gene therapy; inulin graft
biodegradable polycation gene therapy
- IT Biodegradable materials
Gene therapy
(a biodegradable polycation compn. for delivery of
anionic macromol. in gene therapy)
- IT Polysaccharides, biological studies
RL: IMF (Industrial manufacture); PRP (Properties); THU (Therapeutic use);
BIOL (Biological study); PREP (Preparation); USES (Uses)
(conjugates; a biodegradable polycation compn. for
delivery of anionic macromol. in gene
therapy)
- IT Polysaccharides, biological studies
RL: IMF (Industrial manufacture); PRP (Properties); THU (Therapeutic use);
BIOL (Biological study); PREP (Preparation); USES (Uses)
(polyamine-grafted; a biodegradable
polycation compn. for delivery of anionic macromol.
in gene therapy)
- IT 71-44-3DP, Spermine, grafted products with oxidized
polysaccharides 124-20-9DP, Spermidine,
grafted products with oxidized polysaccharides
9002-98-6DP, grafted products with oxidized
polysaccharides 9004-54-0DP, Dextran,
oxidized, oligoamine grafted products, biological studies
9036-66-2DP, Arabinogalactan, oxidized,
oligoamine grafted products 9057-02-7DP,
Pullulan, oxidized, oligoamine grafted products
103493-12-5DP, conjugation products with tosylated polysaccharides
168788-09-8DP, conjugation products with tosylated polysaccharides
202145-88-8DP, conjugation products with tosylated polysaccharides
322728-31-4DP, grafted products with oligoamine and
Spermine
RL: IMF (Industrial manufacture); PRP (Properties); THU (Therapeutic use);
BIOL (Biological study); PREP (Preparation); USES (Uses)
(a biodegradable polycation compn. for delivery of
anionic macromol. in gene therapy)
- IT 104-15-4, p-Toluenesulfonic acid, uses
RL: MOA (Modifier or additive use); USES (Uses)
(linking agent; a biodegradable polycation compn.
for delivery of anionic macromol. in gene
therapy)
- IT 288-32-4, Imidazole, reactions 383-63-1, Ethyl trifluoroacetate
501-53-1, Benzyl chloroformate
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant for terminating agent; a biodegradable
polycation compn. for delivery of anionic macromol.
in gene therapy)
- IT 71-44-3, Spermine
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant; a biodegradable polycation compn. for
delivery of anionic macromol. in gene
therapy)
- IT 22129-07-3P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
(Reactant or reagent)
(terminating agent; a biodegradable polycation
compn. for delivery of anionic macromol. in gene
therapy)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD

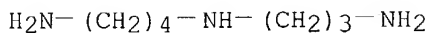
RE

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(2) Autenshlyus, A; RU 2027190 A 1995 HCAPLUS
 (3) Galina, L; US 5567685 A 1996 HCAPLUS
 (4) Peter, D; US 4146515 A 1979 HCAPLUS
 (5) The John Hopkins University; WO 9801162 A 1998 HCAPLUS
 IT 71-44-3DP, Spermine, grafted products with oxidized
 polysaccharides 124-20-9DP, Spermidine,
 grafted products with oxidized polysaccharides
 9002-98-6DP, grafted products with oxidized
 polysaccharides 9004-54-0DP, Dextran,
 oxidized, oligoamine grafted products, biological studies
 9036-66-2DP, Arabinogalactan, oxidized,
 oligoamine grafted products 9057-02-7DP,
 Pullulan, oxidized, oligoamine grafted products
 RL: IMF (Industrial manufacture); PRP (Properties); THU (Therapeutic use);
 BIOL (Biological study); PREP (Preparation); USES (Uses)
 (a biodegradable polycation compn. for delivery of
 anionic macromol. in gene therapy)
 RN 71-44-3 HCAPLUS
 CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 124-20-9 HCAPLUS
 CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 9002-98-6 HCAPLUS
 CN Aziridine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 151-56-4
 CMF C2 H5 N



RN 9004-54-0 HCAPLUS
 CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9036-66-2 HCAPLUS
 CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9057-02-7 HCAPLUS
 CN Pullulan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 71-44-3, Spermine
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reactant; a biodegradable polycation compn. for
 delivery of anionic macromol. in gene
 therapy)
 RN 71-44-3 HCAPLUS

CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

H₂N-(CH₂)₃-NH-(CH₂)₄-NH-(CH₂)₃-NH₂

L95 ANSWER 11 OF 20 HCAPLUS COPYRIGHT 2003 ACS

AN 2000:846470 HCAPLUS

DN 134:172678

TI Synthesis and heparin-like biological activity of **amino acid-based polymers**

AU Bentolila, Alfonso; Vlodavsky, Israel; Haloun, Christine; **Domb, Abraham J.**

CS Departments of Medicinal Chemistry, School of Pharmacy-Faculty of Medicine, The Hebrew University of Jerusalem, Jerusalem, 91120, Israel

SO Polymers for Advanced Technologies (2000), 11(8-12), 377-387

CODEN: PADTE5; ISSN: 1042-7147

PB John Wiley & Sons Ltd.

DT Journal

LA English

CC 1-3 (Pharmacology)

Section cross-reference(s): 33, 34, 35

AB Biol. macromols. are important regulators of physiol. functions. Most of the biol. active macromols. are charged linear polymers like some **proteins, DNA** and glycosaminoglycans (GAG). Heparin, the first GAG applied in medicine, is a natural **polyanion** composed of repeating **disaccharide** units of **glucosamine** and uronic acid. The **amino** and hydroxyl groups of the **glucosamine** units are partially sulfated. Heparin is a potent anticoagulant, and is also active as an antimetastatic and antiproliferative agent. Sulfatation of other **polysaccharides** such as laminarin yielded very potent new anticoagulants. It was hypothesized that macromols. based on N-acryl L-**amino acids** bearing **hydrophobic** or charged side groups, such as -NH₂, -COOH, -SH, -OH and phenols, arranged into a configuration detd. by the chirality of the **amino acid** .alpha.-carbon, may express heparin-like biol. activities. Homo-poly(N-acryl **amino acids**) were synthesized from the corresponding monomers. Polymers with different charge densities, nature of the **amino acid** side group, stereoselectivity and polymeric backbone were tested for their activity as anticoagulants, heparanase inhibition agents, and to basic fibroblast growth factor (b-FGF) release agents bound to the extracellular matrix (ECM). The type of **amino acid**, the polymer backbone, the charge d. and distribution strongly affect the biol. activity exerted by these **polyanions**. All polymers being active either as heparanase inhibitors and/or as b-FGF release agents have at least a neg. charge d. of 1 per **amino acid** residue. Polymers bearing hydrophilic side **chains** that inhibited heparanase, i.e., hydroxyproline, glycine and serine, did not release b-FGF from ECM. The absence of high acidic sulfate-ester groups existing in heparin (hydrophilic) must be compensated by some kind of lipophilic interactions between the **polyanion** and b-FGF in order to effectively compete with heparan sulfate proteoglycans, causing its release from ECM. Heparanase inhibitors may have clin. **applications** in preventing tumor metastasis and inflammatory/autoimmune processes due to the involvement of this enzyme in the extravasation of blood-borne tumor cells and activated cells of the immune system. Mols. that release ECM-bound b-FGF may be applied to accelerate neovascularization and tissue repair.

ST polyacrylic **amino acid** prepn structure anticoagulant; heparanase inhibitor **amino acid** polyacrylate **polyanion**; basic fibroblast growth factor **polyanion** anticoagulant; smooth muscle antiproliferative **amino acid** polyacrylate; heparinoid

- polyacrylic amino acid polysaccharide anticoagulant
- IT Polyelectrolytes
(anionic; synthesis and heparin-like activity of amino acid-based polyanions)
- IT Structure-activity relationship
(anticoagulant; synthesis and heparin-like activity of amino acid-based polyanions)
- IT Extracellular matrix
(b-FGF release from; synthesis and heparin-like activity of amino acid-based polyanions)
- IT Structure-activity relationship
(enzyme-inhibiting, heparanase-inhibiting; synthesis and heparin-like activity of amino acid-based polyanions)
- IT Mucopolysaccharides, biological studies
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(heparinoids; synthesis and heparin-like activity of amino acid-based polyanions)
- IT Anticoagulants
(synthesis and heparin-like activity of amino acid-based polyanions)
- IT Amino acids, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis and heparin-like activity of amino acid-based polyanions)
- IT 89800-66-8, Heparanase
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(inhibition; synthesis and heparin-like activity of amino acid-based polyanions)
- IT 106096-93-9, Basic fibroblast growth factor
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(release from extracellular matrix; synthesis and heparin-like activity of amino acid-based polyanions)
- IT 30602-14-3P 59809-33-5P 60474-91-1P 159597-66-7P 192705-82-1P
192705-84-3P 192705-89-8P 192705-92-3P 288325-10-0P 288325-12-2P
288325-16-6P
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(synthesis and heparin-like activity of amino acid-based polyanions)
- IT 56-41-7DP, L-Alanine, conjugates with arabinogalactan or dextran, biological studies 60-18-4DP, L-Tyrosine, conjugates with arabinogalactan or dextran, biological studies 61-90-5DP, L-Leucine, conjugates with arabinogalactan or dextran, biological studies 9004-54-0DP, Dextran, conjugates with alanine, leucine or tyrosine, biological studies 9036-66-2DP, Arabinogalactan, conjugates with alanine, leucine or tyrosine
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(synthesis and heparin-like activity of amino acid-based polyanions)
- IT 9005-49-6, Heparin, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(synthesis and heparin-like activity of amino acid-based polyanions)

IT 56-40-6, Glycine, reactions 147-85-3, Proline, reactions 687-64-9
814-68-6, Acryloyl chloride 1119-33-1, Ethyl L-glutamate 1499-46-3
1499-56-5 16874-12-7 21691-53-2 81102-38-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis and heparin-like activity of **amino acid-based polyanions**)

IT 186349-24-6P 288325-08-6P 326488-88-4P 326488-89-5P 326488-90-8P
326488-91-9P 326488-92-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(synthesis and heparin-like activity of **amino acid-based polyanions**)

RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
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(33) Wolfrom, M; J Amer Chem Soc 1959, V81, P1764 HCAPLUS

IT 9004-54-ODP, Dextran, conjugates with alanine, leucine
or tyrosine, biological studies 9036-66-2DP,
Arabinogalactan, conjugates with alanine, leucine or tyrosine
RL: BAC (Biological activity or effector, except adverse); BSU (Biological
study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use);
BIOL (Biological study); PREP (Preparation); USES (Uses)
(synthesis and heparin-like activity of **amino acid-based polyanions**)

RN 9004-54-0 HCAPLUS
CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9036-66-2 HCAPLUS
CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L95 ANSWER 12 OF 20 HCAPLUS COPYRIGHT 2003 ACS

AN 2000:208556 HCAPLUS

DN 133:79171

TI Generation of photopolymerized membrane mimetic monolayer on an **alginate/poly-L-lysine** coacervate

AU Liu, Hongbo; Orban, Janine M.; Chaikof, Elliot L.

CS Laboratory for Biomolecular Materials Research Department of Surgery and Bioengineering, Emory University, Atlanta, GA, 30322, USA

SO Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2000), 41(1), 1036-1037

CODEN: ACPPAY; ISSN: 0032-3934

PB American Chemical Society, Division of Polymer Chemistry

DT Journal

LA English

CC 63-5 (Pharmaceuticals)

Section cross-reference(s): 38

AB A new biomimetic approach was described for generating an ultrathin org. barrier with the capacity for tailored transport and surface properties based upon a membrane-mimetic strategy. A stable, lipid membrane-like bilayer was produced on a hydrated **alginate** substrate. The **modification** of a **poly(L-lysine)** (PLL)-**alginate** coacervate with a membrane-mimetic monolayers has been successfully prepd. by the design of an **amphiphilic** polymer with dialkyl side **chains**, flexible spacer groups, and **anionic** substituents which anchor the polymer to a **cationic** surface. After lipid vesicle fusion to the alkylated hydrogel, the lipid assembly is stabilized via in situ photopolymer. Contact angle measurements were used to confirm and monitor film formation and stability. The assembly was stable for up to 4 wk in water. Ellipsometry data provided valuable supporting information.

ST polymer membrane mimetic **alginate polylysine**

coacervate; controlled drug delivery polymer membrane mimetic

IT Aggregates

(coacervates; generation of photopolymerized membrane mimetic monolayer on **alginate/polylysine** coacervate)

IT Drug delivery systems

(controlled-release; generation of photopolymerized membrane mimetic monolayer on **alginate/polylysine** coacervate)

IT Contact angle

(generation of photopolymerized membrane mimetic monolayer on **alginate/polylysine** coacervate)

IT Membrane, biological

(mimetics; generation of photopolymerized membrane mimetic monolayer on **alginate/polylysine** coacervate)

IT 278803-41-1P

RL: PNU (Preparation, unclassified); RCT (Reactant); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(generation of photopolymerized membrane mimetic monolayer on **alginate/polylysine** coacervate)

IT 225239-50-9P

RL: PNU (Preparation, unclassified); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(generation of photopolymerized membrane mimetic monolayer on **alginate/polylysine** coacervate)

IT 9005-32-7, Alginic acid 25104-18-1, Poly(L-lysine) 38000-06-5, Poly(L-lysine)

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(generation of photopolymerized membrane mimetic monolayer on **alginate/polylysine** coacervate)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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- (2) Erdelen, C; Langmuir 1994, V10, P1246 HCAPLUS
- (3) Marra, K; Langmuir 1997, V13, P5697 HCAPLUS
- (4) Marra, K; Macromolecules 1997, V30, P6483 HCAPLUS
- (5) Orban, J; Submitted to Macromolecules
- (6) Orban, J; Trans of the Annual Meeting of the Materials 1999

IT 9005-32-7, Alginic acid 25104-18-1,
Poly(L-lysine) 38000-06-5, Poly(L-lysine)

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(generation of photopolymd. membrane mimetic monolayer on
alginate/polylysine coacervate)

RN 9005-32-7 HCAPLUS

CN Alginic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 25104-18-1 HCAPLUS

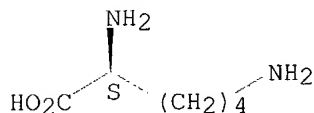
CN L-Lysine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 56-87-1

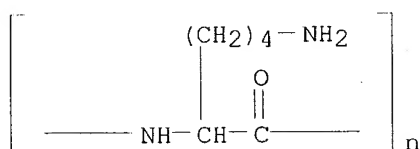
CMF C6 H14 N2 O2

Absolute stereochemistry.



RN 38000-06-5 HCAPLUS

CN Poly[imino[(1S)-1-(4-aminobutyl)-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)



L95 ANSWER 13 OF 20 HCAPLUS COPYRIGHT 2003 ACS

AN 2000:102471 HCAPLUS

DN 132:255934

TI Biomedical **coatings** by the covalent immobilization of
polysaccharides onto gas-plasma-activated polymer surfaces

AU Dai, Liming; StJohn, Heather A. W.; Bi, Jingjing; Zientek, Paul;
Chatelier, Ronald C.; Griesser, Hans J.

CS CSIRO Molecular Science, Clayton, 3169, Australia

SO Surface and Interface Analysis (2000), 29(1), 46-55
CODEN: SIANDQ; ISSN: 0142-2421

PB John Wiley & Sons Ltd.

DT Journal

LA English

CC 63-7 (Pharmaceuticals)

AB As the surface properties of polymeric biomaterials play an important role
in the performance of biomedical devices, highly hydrophilic, ultrathin

coatings were applied onto **hydrophobic**, perfluorinated and organosilicon polymers by the covalent immobilization of **polysaccharides** using a reductive amination reaction. Gas plasma (r.f. glow discharge) methods were employed to equip the surfaces of these normally unreactive polymeric substrates with chem. groups capable of reacting with **polysaccharides** in aq. soln. In one variant, ammonia plasmas were used to introduce into the polymer surfaces a submonolayer of **amine** groups. Alternatively, an n-**heptylamine** process vapor was used to deposit a thin plasma polymer film that possessed surface **amine** groups. The **polysaccharides** were activated for covalent immobilization by periodate oxidn., which produced hemiacetal structures, as revealed by NMR and XPS. The hemiacetal structures in the **polysaccharide chains** were reacted with the surface **amine** groups on the polymers. The resulting Schiff base linkages were stabilized by redn. to secondary **amine** linkages using sodium cyanoborohydride. Detailed surface anal. is important for **verification** that the intended chemistries have indeed been achieved in such multilayer **coating** schemes. XPS provided a thickness est. of 1 +/- 0.3 nm for the **polysaccharide coatings** in the dehydrated state.

ST biomedical **coating polysaccharide** plasma polymer surface

IT Prosthetic materials and Prosthetics
Wettability

(biomedical **coatings** by covalent immobilization of **polysaccharides** onto gas-plasma-activated polymer surfaces)

IT Fluoropolymers, biological studies

RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(biomedical **coatings** by covalent immobilization of **polysaccharides** onto gas-plasma-activated polymer surfaces)

IT Coating process

(plasma spraying; biomedical **coatings** by covalent immobilization of **polysaccharides** onto gas-plasma-activated polymer surfaces)

IT 111-68-2, **Heptylamine**

RL: PEP (Physical, engineering or chemical process); PROC (Process)
(biomedical **coatings** by covalent immobilization of **polysaccharides** onto gas-plasma-activated polymer surfaces)

IT 9004-54-0D, **Dextran**, oxidized, biological studies

25067-11-2, Teflon fep 87842-32-8, Poly(1-trimethylsilyl-1-propyne)
RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(biomedical **coatings** by covalent immobilization of **polysaccharides** onto gas-plasma-activated polymer surfaces)

RE.CNT 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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Organic Compounds 1989

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- IT 9004-54-0D, **Dextran**, oxidized, biological studies
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU
 (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
 (biomedical **coatings** by covalent immobilization of
polysaccharides onto gas-plasma-activated polymer surfaces)
- RN 9004-54-0 HCAPLUS
 CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L95 ANSWER 14 OF 20 HCAPLUS COPYRIGHT 2003 ACS
 AN 2000:10613 HCAPLUS
 DN 132:69331
 TI Drug conjugates with oxidized **arabinogalactan** or **dextran**
 IN **Domb, Abraham J.**; Benita, Shimon; Polacheck, Itzhack; Linden,
 Galina
 PA Yissum Research Development Company of the Hebrew University of
 Jerusalem, Israel
 SO U.S., 10 pp., Cont. of U.S. Ser. No. 780,677, abandoned.
 CODEN: USXXAM
 DT Patent
 LA English
 IC ICM A61K037-02
 ICS A61K037-36; C07K013-00
 NCL 514008000
 CC 63-6 (Pharmaceuticals)
 Section cross-reference(s): 1, 33, 34
 FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|------------|------|----------|-----------------|----------|
| | ----- | --- | ----- | ----- | ----- |
| PI | US 6011008 | A | 20000104 | US 1998-90587 | 19980604 |

PRAI US 1997-780677 19970108

AB A method for producing a water-sol. **polysaccharide** conjugate of an oxidn.-sensitive substance is described. The method comprises the following steps: (a) activating the **polysaccharide** to a dialdehyde by periodate oxidn.; (b) purifying the dialdehyde from interfering **anions** and byproducts; and (c) coupling the substance to the purified dialdehyde by Schiff base formation to form the conjugate. Optionally, the conjugate of step (c) is reduced to an **amine** conjugate by a reducing substance. The product conjugate may then be further purified from various reaction byproducts. The disclosed method results in the substance substantially retaining its biol. activity. Also described are **imine** and **amine polysaccharide** conjugates of various drugs and **polypeptides**. E.g., doxorubicin was conjugated with oxidized **dextran** and oxidized **arabinogalactan**.

ST drug conjugate oxidized **dextran arabinogalactan**

IT **Peptides, biological studies**
Polysaccharides, biological studies
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (conjugates; drug conjugates with oxidized **arabinogalactan** or **dextran**)

IT Anti-inflammatory agents
 Antimicrobial agents
 Antitumor agents
 (drug conjugates with oxidized **arabinogalactan** or **dextran**)

IT 50-07-7DP, Mitomycin c, conjugates with oxidized **arabinogalactan**
 1404-26-8DP, Polymyxin b, conjugates with oxidized **arabinogalactan**
 23214-92-8DP, Doxorubicin, conjugates with oxidized **arabinogalactan** or **dextran**
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (drug conjugates with oxidized **arabinogalactan** or **dextran**)

IT 9004-54-ODP, **Dextran**, oxidized, conjugates with drugs, biological studies 9036-66-2DP, **Arabinogalactan**, oxidized, conjugates with drugs 37317-99-ODP, **Dextran** dialdehyde, conjugates with drugs
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (drug conjugates with oxidized **arabinogalactan** or **dextran**)

IT 56-40-6, Glycine, reactions 33069-62-4, Taxol
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (drug conjugates with oxidized **arabinogalactan** or **dextran**)

IT 117527-59-OP
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (drug conjugates with oxidized **arabinogalactan** or **dextran**)

IT 50-02-2DP, Dexamethasone, conjugates with oxidized **arabinogalactan**
 89-57-6DP, 5-Aminosalicylic acid, conjugates with oxidized **arabinogalactan** 1400-61-9DP, Nystatin, conjugates with **dextran** 1403-66-3DP, Gentamicin, conjugates with oxidized **arabinogalactan** 9004-10-8DP, Insulin, conjugates with oxidized **arabinogalactan**, biological studies 32986-56-4DP, Tobramycin, conjugates with oxidized **arabinogalactan** 51110-01-1DP, Somatostatin, conjugates with oxidized **arabinogalactan** 117527-59-ODP, conjugates with oxidized **arabinogalactan**

RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(drug conjugates with oxidized **arabinogalactan** or **dextran**)

IT 50-56-6, Oxytocin, biological studies 58-14-0, **Pyrimethamine**
58-82-2, Bradykinin 59-05-2, Methotrexate 68-35-9, Sulfadiazine
80-08-0, Dapsone 738-70-5, Trimethoprim 2022-85-7, Flucytosine
9007-12-9, Calcitonin 9034-40-6, LHRH 11000-17-2, Vasopressin
20830-81-3, Daunorubicin 24305-27-9, Trf

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(drug conjugates with oxidized **arabinogalactan** or **dextran**)

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

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IT 9004-54-0DP, **Dextran**, oxidized, conjugates with drugs,
biological studies 9036-66-2DP, **Arabinogalactan**,
oxidized, conjugates with drugs

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(drug conjugates with oxidized **arabinogalactan** or **dextran**)

RN 9004-54-0 HCAPLUS

CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9036-66-2 HCAPLUS

CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L95 ANSWER 15 OF 20 HCAPLUS COPYRIGHT 2003 ACS

AN 1999:468575 HCAPLUS

DN 131:106842

TI Polymeric carriers for delivery of bioactive agents

IN **Domb, Avraham J.**; Zehavi, Zeev

PA Efrat Biopolymers Ltd., Israel

SO PCT Int. Appl., 29 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM A61K047-34

CC 63-6 (Pharmaceuticals)

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|------------|------|----------|-----------------|----------|
| PI | WO 9936100 | A2 | 19990722 | WO 1999-IL23 | 19990114 |
| | WO 9936100 | A3 | 19990923 | | |

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,
DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN,
MW, MX, NO, NZ, PL, PT, RO, RU, SE, SG, SI, SK, SL, TJ, TM, TR,

TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES,
 FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI,
 CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

AU 9918889 A1 19990802 AU 1999-18889 19990114

EP 967998 A2 20000105 EP 1999-900284 19990114

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, FI

JP 2001515522 T2 20010918 JP 1999-536971 19990114

PRAI IL 1998-122933 A 19980114

WO 1999-IL23 W 19990114

AB The invention provides a polymeric carrier for delivery of a bioactive or bioreactive mol., comprising a stereocomplex of at least one biocompatible stereoselective polymer and a bioactive or bioreactive mol. L-Polylactide (1 g, mol. wt. 30,000) and D-polylactide (1 g, mol. wt. 30,000) were added to 70 mL acetonitrile at 60.degree.. A clear soln. became turbid after 4-5 h and after 2 days at 60.degree., a heavy white solid pptd. After 3 days, the soln. was filtered and the stereocomplex was collected and dried in vacuum over night. Methotrexate was incorporated in the above stereocomplex in the form of a powder and the mixt. was compression molded to form tablets.

ST polymer stereo complex drug carrier; polylactide stereo complex methotrexate tablet

IT Drug delivery systems

(beads; polymeric carriers for delivery of bioactive agents)

IT **Proteins**, specific or class

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(biol. active; polymeric carriers for delivery of bioactive agents)

IT Drug delivery systems

(enteric; polymeric carriers for delivery of bioactive agents)

IT Drug delivery systems

(gels; polymeric carriers for delivery of bioactive agents)

IT Carboxylic acids, biological studies

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(hydroxy, polymers; polymeric carriers for delivery of bioactive agents)

IT Drug delivery systems

(implants; polymeric carriers for delivery of bioactive agents)

IT Drug delivery systems

(ointments, creams; polymeric carriers for delivery of bioactive agents)

IT Drug delivery systems

(ointments; polymeric carriers for delivery of bioactive agents)

IT Drug delivery systems

(parenterals; polymeric carriers for delivery of bioactive agents)

IT Drug delivery systems

(particles; polymeric carriers for delivery of bioactive agents)

IT Drug delivery systems

(pastes; polymeric carriers for delivery of bioactive agents)

IT Drug delivery systems

(pellets; polymeric carriers for delivery of bioactive agents)

IT **Plasmids**

Vaccines

Virus vectors

(polymeric carriers for delivery of bioactive agents)

IT Albumins, biological studies

Antisense oligonucleotides

Blood-coagulation factors

Carbohydrates, biological studies

Gene

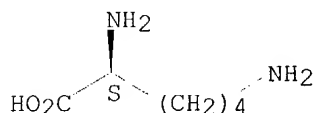
Growth factors, animal

Hormones, animal, biological studies

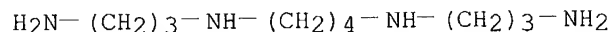
Lipids, biological studies

Nucleotides, biological studies
 Oligonucleotides
 Peptides, biological studies
 Polyamides, biological studies
 Polyanhydrides
 Polycarbonates, biological studies
 Polyesters, biological studies
 Polyoxyalkylenes, biological studies
 Polysaccharides, biological studies
 Proteins, general, biological studies
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (polymeric carriers for delivery of bioactive agents)
 IT Drug delivery systems
 (tablets; polymeric carriers for delivery of bioactive agents)
 IT 56-87-1, Lysine, biological studies 59-05-2,
 Methotrexate 71-44-3, Spermine 124-20-9,
 Spermidine 9001-92-7, Protease 9002-88-4, Polyethylene
 9034-40-6, LHRH 15687-27-1, Ibuprofen 24305-27-9, TRH
 25104-18-1, Polylysine 26023-30-3,
 Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26680-10-4, Polylactide
 26917-25-9 38000-06-5, Polylysine 74381-53-6,
 Leuprolide acetate 106989-11-1, D-Lactic acid polymer 129426-81-9
 149479-29-8 151879-73-1, ISIS 3521
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (polymeric carriers for delivery of bioactive agents)
 IT 56-87-1, Lysine, biological studies 71-44-3,
 Spermine 124-20-9, Spermidine
 25104-18-1, Polylysine 38000-06-5,
 Polylysine
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (polymeric carriers for delivery of bioactive agents)
 RN 56-87-1 HCAPLUS
 CN L-Lysine (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 71-44-3 HCAPLUS
 CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 124-20-9 HCAPLUS
 CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

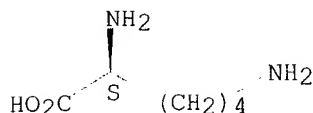


RN 25104-18-1 HCAPLUS
 CN L-Lysine, homopolymer (9CI) (CA INDEX NAME)

CM 1

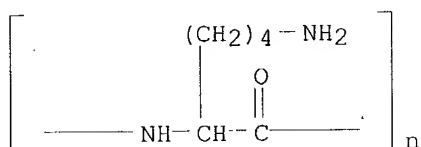
CRN 56-87-1
 CMF C6 H14 N2 O2

Absolute stereochemistry.



RN 38000-06-5 HCAPLUS

CN Poly[imino[(1S)-1-(4-aminobutyl)-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)



L95 ANSWER 16 OF 20 HCAPLUS COPYRIGHT 2003 ACS

AN 1999:339444 HCAPLUS

DN 130:343042

TI Biocompatible polymeric **coatings** for cell culture substrate and medical devices

IN Domb, Abraham Jacob

PA Alomone Labs Ltd., Israel

SO Eur. Pat. Appl., 10 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM A61L029-00

ICS A61L031-00

CC 63-6 (Pharmaceuticals)

Section cross-reference(s): 9, 38

FAN.CNT.1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|---|------|----------|-----------------|----------|
| PI | EP 914835 | A2 | 19990512 | EP 1998-309089 | 19981105 |
| | EP 914835 | A3 | 20010321 | | |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | | |
| | US 6127448 | A | 20001003 | US 1998-189101 | 19981109 |
| PRAI | IL 1997-122153 | A | 19971110 | | |

AB The invention provides a biocompatible polymeric **coating** material selected from the group consisting of linear, dendrimeric and **branched** polymers which contain primary, secondary, tertiary or quaternary **amine** groups with **hydrophobic** side **chains** and which polymers are insol., or only slightly sol., in aq. soln. at pH 3-11 and sol. in at least one org. solvent selected from the group consisting of alcs., acetone, Me Et ketone, THF, dioxane, chloroform, dichloromethane, hexanes, mixts. thereof and mixts. of any of the above with water. The invention also provides the use of such a polymeric material in a biocompatible **coating** compn. for substrates such as a cell growth culture substrate or a medical device. The cell adhesion properties of polystyrene plates **coated** with various **polyamine** derivs. (e.g. stearyl and pentyl derivs. of **polyethylenimine** and **polyvinylamine**) were tested using PC12 neuronal cells.

ST biocompatible polymer **coating** medical prosthetic; cell growth substrate biocompatible polymer **coating**

IT Animal cell line
(P12 neuronal cells; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT Animal cell line
(P19; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT **Polysaccharides, biological studies**
RL: DEV (Device component use); POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**aminodeoxy**; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT Blood vessel
(artificial; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT Medical goods
(biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT Dendritic polymers
RL: DEV (Device component use); POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT Polyoxyalkylenes, uses
RL: MOA (Modifier or additive use); USES (Uses)
(biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT Polymers, biological studies
RL: DEV (Device component use); POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**branched**; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT Medical goods
(catheters; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT Polyelectrolytes
(**cationic**; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT Fluorescent dyes
(compn. contg.; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT Containers
(glass, for storage of polymer **coating** compns.; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT Polymers, biological studies
RL: DEV (Device component use); POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(linear; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT Prosthetic materials and Prosthetics
(orthopedic; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT **Polyamines**
Polyamines
RL: DEV (Device component use); POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**polyamide-**; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT **Polyamides, biological studies**
Polyamides, biological studies
RL: DEV (Device component use); POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**polyamine-**; biocompatible polymeric **coatings** for

cell growth culture substrate and medical devices)

IT Antibodies
Hormones, animal, biological studies
Receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(polymer **coatings** suitable for attachment of; biocompatible
polymeric **coatings** for cell growth culture substrate and
medical devices)

IT Alcohols, properties
RL: PRP (Properties)
(polymers soly. in; biocompatible polymeric **coatings** for cell
growth culture substrate and medical devices)

IT Glass beads
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
(Uses)
(porous; biocompatible polymeric **coatings** for cell growth
culture substrate and medical devices)

IT Medical goods
(sponges; biocompatible polymeric **coatings** for cell growth
culture substrate and medical devices)

IT Medical goods
(stents; biocompatible polymeric **coatings** for cell growth
culture substrate and medical devices)

IT Animal tissue culture
(substrates for growth of; biocompatible polymeric **coatings**
for cell growth culture substrate and medical devices)

IT Cell adhesion
(substrates for; biocompatible polymeric **coatings** for cell
growth culture substrate and medical devices)

IT Plates
(tissue culture; biocompatible polymeric **coatings** for cell
growth culture substrate and medical devices)

IT 9061-61-4, Nerve growth factor
RL: BAC (Biological activity or effector, except adverse); BSU (Biological
study, unclassified); BIOL (Biological study)
(biocompatible polymeric **coatings** for cell growth culture
substrate and medical devices)

IT 74-88-4D, Methyl iodide, reaction products with **polyethylenimine**
79-10-7D, Acrylic acid, polymers, alkylated 112-67-4D, Palmitoyl
chloride, reaction products with **polyethylenimine** 112-76-5D,
Stearyl chloride, reaction products with **polyethylenimine**
543-59-9D, n-Pentyl chloride, reaction products with
polyethylenimine 593-67-9D, **Vinylamine**, polymers,
alkylated 1002-69-3D, Decyl chloride, reaction products with
polyethylenimine 3386-33-2D, n-Octadecyl chloride, reaction
products with **polyethylenimine** 9002-98-6D,
Polyethylenimine, alkylated 24937-49-3D,
Polyornithine, alkylated 25104-12-5D,
Polyornithine, alkylated 25104-18-1D, Poly(L-
lysine), alkylated 26336-38-9D, Poly(**vinylamine**),
alkylated 26913-06-4D, **Polyethylenimine**, SRU,
alkylated 38000-06-5D, Poly(L-lysine),
alkylated 49791-22-2D, Decanoyl bromide, reaction products with
polyvinylamine 224312-22-5 224312-24-7
RL: DEV (Device component use); POF (Polymer in formulation); THU
(Therapeutic use); BIOL (Biological study); USES (Uses)
(biocompatible polymeric **coatings** for cell growth culture
substrate and medical devices)

IT 56-81-5, Glycerin, uses 25322-68-3, Polyethylene glycol
RL: MOA (Modifier or additive use); USES (Uses)
(biocompatible polymeric **coatings** for cell growth culture
substrate and medical devices)

IT 67-64-1, Acetone, properties 67-66-3, Chloroform, properties 75-09-2,

Dichloromethane, properties 78-93-3, Methyl ethyl ketone, properties 109-99-9, Tetrahydrofuran, properties 110-54-3, Hexane, properties 123-91-1, Dioxane, properties

RL: PRP (Properties)

(polymers soly. in; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT 9002-98-6D, Polyethylenimine, alkylated
 24937-49-3D, Polyornithine, alkylated
 25104-12-5D, Polyornithine, alkylated
 25104-18-1D, Poly(L-lysine), alkylated
 26913-06-4D, Polyethylenimine, SRU, alkylated
 38000-06-5D, Poly(L-lysine), alkylated

RL: DEV (Device component use); POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

RN 9002-98-6 HCAPLUS

CN Aziridine, homopolymer (9CI) (CA INDEX NAME)

CM 1

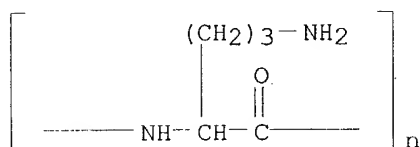
CRN 151-56-4

CMF C2 H5 N



RN 24937-49-3 HCAPLUS

CN Poly[imino[(1S)-1-(3-aminopropyl)-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)



RN 25104-12-5 HCAPLUS

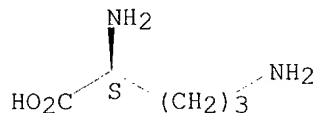
CN L-Ornithine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 70-26-8

CMF C5 H12 N2 O2

Absolute stereochemistry.



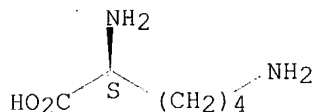
RN 25104-18-1 HCAPLUS

CN L-Lysine, homopolymer (9CI) (CA INDEX NAME)

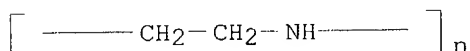
CM 1

CRN 56-87-1
CMF C6 H14 N2 O2

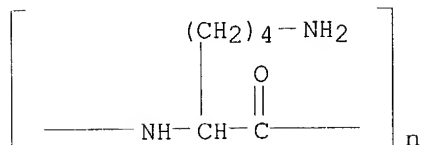
Absolute stereochemistry.



RN 26913-06-4 HCAPLUS
CN Poly[imino(1,2-ethanediyl)] (9CI) (CA INDEX NAME)



RN 38000-06-5 HCAPLUS
CN Poly[imino[(1S)-1-(4-aminobutyl)-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)



L95 ANSWER 17 OF 20 HCAPLUS COPYRIGHT 2003 ACS

AN 1996:391632 HCAPLUS

DN 125:58986

TI Preparation of water-soluble polyene antibiotic-polysaccharide conjugates as antifungals.

IN Linden, Galina; Domb, Abraham J.; Polacheck, Itzhack; Benita, Shimon

PA Helfgott and Karas, P. C., USA; Yisum Research Development Company of the Hebrew University

SO PCT Int. Appl., 33 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C07H017-08

ICS C08B037-00; C08B037-02; A61K031-70; A61K031-715; A61K039-395; A61K039-44

CC 33-7 (Carbohydrates)

Section cross-reference(s): 1

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|------------|------|----------|--|----------|
| PI | WO 9605212 | A1 | 19960222 | WO 1995-US10522 | 19950816 |
| | W: | | | AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT | |
| | RW: | | | KE, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG | |
| | US 5567685 | A | 19961022 | US 1994-291292 | 19940816 |
| | IL 114796 | A1 | 20000217 | IL 1995-114796 | 19950801 |

AU 9533673 A1 19960307 AU 1995-33673 19950816
 EP 776329 A1 19970604 EP 1995-930205 19950816
 EP 776329 B1 20030102
 R: DE, FR, GB, IT
 JP 10504347 T2 19980428 JP 1995-507622 19950816
 PRAI US 1994-291292 A 19940816
 WO 1995-US10522 W 19950816
 AB A substantially stable H2O-sol. conjugate of a **polysaccharide**
 and an unoxidized, biol. active polyene antibiotic, conjugated to the
polysaccharide by an **imine** or **amine** bond, is
 claimed. Thus, **dextran-40** was oxidized with KIO4 in H2O for 2 h
 to give dialdehyde **dextran** (DAD), which was purified on Dowex-1.
 The DAD soln. was stirred with nystatin in borate buffer at pH 8.9 for 16
 h to give the H2O-sol. (100 mg/mL) **imine** conjugate in
 .gtoreq.95% yield. The conjugate had >2 times the activity of nystatin
 itself against various fungi.
 ST nystatin **polysaccharide** conjugate prepn antifungal; polyene
 antibiotic **polysaccharide** conjugate prepn antifungal
 IT Fungicides and Fungistats
 (nystatin and amphotericin B conjugates; prepn. of water-sol. polyene
 antibiotic-**polysaccharide** conjugates)
 IT Antibiotics
 (polyene; prepn. of water-sol. polyene antibiotic-
 polysaccharide conjugates)
 IT **Polysaccharides, preparation**
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological
 study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use);
 BIOL (Biological study); PREP (Preparation); USES (Uses)
 (prepn. of water-sol. polyene antibiotic-**polysaccharide**
 conjugates)
 IT 1397-89-3DP, Amphotericin B, conjugates with **polysaccharides**
 1400-61-9DP, Nystatin, conjugates with **polysaccharides**
 9004-54-ODP, **Dextran**, conjugates with antibiotics
 9036-66-2DP, **Arabinogalactan**, conjugates with nystatin
 and amphotericin B 37317-99-ODP, **Dextran** dialdehyde, conjugate
 with nystatin
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological
 study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use);
 BIOL (Biological study); PREP (Preparation); USES (Uses)
 (prepn. of water-sol. polyene antibiotic-**polysaccharide**
 conjugates)
 IT 9004-54-ODP, **Dextran**, conjugates with antibiotics
 9036-66-2DP, **Arabinogalactan**, conjugates with nystatin
 and amphotericin B
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological
 study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use);
 BIOL (Biological study); PREP (Preparation); USES (Uses)
 (prepn. of water-sol. polyene antibiotic-**polysaccharide**
 conjugates)
 RN 9004-54-0 HCAPLUS
 CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9036-66-2 HCAPLUS
 CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L95 ANSWER 18 OF 20 HCAPLUS COPYRIGHT 2003 ACS

AN 1996:246191 HCAPLUS

DN 124:306647

TI Nystatin-**dextran** conjugates: synthesis and characterization

AU Domb, Abraham J.; Linden, Galina; Polacheck, Itzhack; Benita,

Simon
 CS Department Pharmaceutical Chemistry, Hebrew University Jerusalem,
 Jerusalem, 91220, Israel
 SO Journal of Polymer Science, Part A: Polymer Chemistry (1996), 34(7),
 1229-36
 CODEN: JPACEC; ISSN: 0887-624X
 PB Wiley
 DT Journal
 LA English
 CC 1-5 (Pharmacology)
 Section cross-reference(s): 33, 34
 AB The coupling of nystatin (Nys), a water-insol. antifungal agent, to
dextran via an **imine** or **amine** bond was
 systematically investigated. **Dextran** was first oxidized to
 dialdehyde **dextran** using potassium periodate, purified from the
 oxidizing agent, and reacted with Nys to form the Schiff base. The Schiff
 base was reduced to the **amine** using borohydride. All reactions
 took place in water. The purifn. of the oxidized **dextran** from
 the oxidizing agent was essential to prevent oxidative degrdn. of Nys at
 the coupling step. The effects on the coupling yield of the following
 factors: **dextran** mol. wt., degree of oxidn. (aldehyde content),
 Nys to **dextran** ratio, temp., and reaction pH were studied. A
 95% coupling yield was obtained at the optimized coupling conditions: pH
 8.9 \pm 0.1, 50% degree of oxidn., and initial ratio of Nys to dialdehyde
dextran 1:2.5. In all expts., **dextran** was decreased in
 mol. wt. during the oxidn. step. Both **imine** and **amine**
 forms of Nys-**dextran** conjugates were sol. in water and exhibited
 improved stability in aq. solns. as compared to the unbound drug. The
 conjugates showed comparable min. inhibitory concn. (MIC) values against
 Candida albicans and Cryptococcus neoformans. The conjugates were about
 25 times less toxic than free Nys after a single injection in mice.
 ST nystatin **dextran** conjugate prepn fungicide
 IT Fungicides and Fungistats
 (prepn. and fungicidal activity of nystatin-**dextran**
 conjugate)
 IT 1400-61-9DP, Nystatin, conjugates with **dextran** 37317-99-0DP,
Dextran dialdehyde, conjugates with nystatin
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological
 study, unclassified); SPN (Synthetic preparation); BIOL (Biological
 study); PREP (Preparation)
 (prepn. and fungicidal activity of nystatin-**dextran**
 conjugate)
 IT 1400-61-9, Nystatin 9004-54-0, **Dextran**, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (prepn. and fungicidal activity of nystatin-**dextran**
 conjugate)
 IT 9004-54-0, **Dextran**, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (prepn. and fungicidal activity of nystatin-**dextran**
 conjugate)
 RN 9004-54-0 HCAPLUS
 CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L95 ANSWER 19 OF 20 HCAPLUS COPYRIGHT 2003 ACS
 AN 1996:75045 HCAPLUS
 DN 124:186263
 TI Novel polysaccharide surfactants: the effect of
hydrophobic and hydrophilic **chain** length on surface
 active properties
 AU Zhang, Tianhong; Marchant, Roger E.
 CS Departments Biomedical Engineering Macromolecular Science, Case Western

- Reserve University, Cleveland, OH, 44106, USA
- SO Journal of Colloid and Interface Science (1996), 177(2), 419-26
CODEN: JCISA5; ISSN: 0021-9797
- PB Academic
- DT Journal
- LA English
- CC 66-1 (Surface Chemistry and Colloids)
- AB A series of nonionic **saccharide** surfactants with an **amide** group linking hydrophilic **saccharide** segment to **hydrophobic** alkyl segment were synthesized and their surface active properties were detd. We **examine** the effects of **hydrophobic** and hydrophilic **chain** lengths on the surface active properties and correlate our results to structural differences in the **saccharide** surfactants. N-Alkylmaltonamides were synthesized with hexyl, octyl, decyl, dodecyl, and octadecyl alkyl segments and N-dodecyl aldonamides were synthesized with glucose, maltose, and **dextran** (DP = 9) **saccharide** segments. Increasing the alkyl **chain** length in N-alkylmaltonamides decreases the crit. micelle concn., and increases the efficiency of reducing water surface tension and **emulsification** ability, but the effectiveness in reducing water surface tension is about the same. Increasing the **saccharide** size in N-dodecyl aldonamides from glucose to maltose to **dextran** increases the crit. micelle concn., decreases the efficiency and effectiveness of reducing water surface tension, but has little effect on **emulsification** properties. We show that the size of the **saccharide** segment is important in detg. the interfacial surface area occupied by the surfactant mols. An octyl, decyl, or dodecyl maltonamide occupies about 40 .ANG.2 at the air/water interface, but this increases to 60 .ANG.2 when maltose is replaced by the larger **dextran**.
- ST **polysaccharide** surfactant surface activity; **chain** hydrophilic **hydrophobic** polysaccharide surface activity
- IT **Chains**, chemical
(hydrophilic and **hydrophobic** chain segment effect on surface activity of polysaccharide surfactants)
- IT Surfactants
(hydrophilic and **hydrophobic** chain-segment effect of polysaccharide surfactants on surface activity)
- IT **Polysaccharides**, properties
RL: PRP (Properties)
(hydrophilic and **hydrophobic** chain-segment effect of polysaccharide surfactants on surface activity)
- IT Surface activity
(hydrophilic and **hydrophobic** chain segment effect on surface activity of polysaccharide surfactants)
- IT 69347-07-5 70803-61-1 70803-62-2 81313-49-7 159063-64-6
RL: PRP (Properties)
(hydrophilic and **hydrophobic** chain segment effect on surface activity of polysaccharide surfactants)
- L95 ANSWER 20 OF 20 HCAPLUS COPYRIGHT 2003 ACS
- AN 1988:204925 HCAPLUS
- DN 108:204925
- TI Synthesis of polysaccharides bearing a lipophilic chain for the chemical modification of enzymes
- AU Wakselman, M.; Cabaret, D.
- CS CERCOA, CNRS, Thiais, 94320, Fr.
- SO Studies in Organic Chemistry (Amsterdam) (1987), 29(Biocatal. Org. Media), 253-60
CODEN: SOCHDQ; ISSN: 0165-3253
- DT Journal

LA English
 CC 33-4 (Carbohydrates)
 Section cross-reference(s): 7, 9
 GI For diagram(s), see printed CA Issue.
 AB **Amphiphilic** reagents were designed for the chem.
modification of proteins. They possess a lipophilic
 alkyl **chain**, an hydrophilic part and a reactive functional
 group. Some reagents of the type were synthesized in which a reducing
disaccharide contained the hydrophilic region and the reactive
 group. However, the model reductive alkylation of N.alpha.-Z-L-
lysine is a slow process. Therefore the synthesis of alkylated
disaccharide contg. an aldehyde function which is not involved in
 an hemiacetal formation was undertaken. E.g., I was prepd. but on
 deacetylation gave a hemiacetal, devoid of aldehyde characteristics.
 ST **polysaccharide** lipophilic **chain** enzyme; melibiose
 acetate allyl; galactopyranose glucopyranose
 IT Enzymes
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (chem. **modification** of, prepn. of **polysaccharides**
 with lipophilic **chain** for)
 IT **Polysaccharides, preparation**
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of, for chem. **modification** of enzymes)
 IT 114389-20-7P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (prepn. and deacetylation of)
 IT 585-99-9P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and functionalization of)
 IT 104706-92-5P 114370-83-1P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (prepn. and reaction of, with **lysine** deriv.)
 IT 114370-85-3P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (prepn. and reductive ozonolysis of)
 IT 104706-87-8P 104706-92-5DP, reaction products with **lysine**
 114370-83-1DP, reaction products with **lysine** 114370-86-4P
 114370-87-5P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of)
 IT 2212-75-1
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reductive alkylation of, with **disaccharides**)
 IT 114370-84-2 114389-19-4
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reductive ozonolysis of)

=> d his

(FILE 'HOME' ENTERED AT 17:34:33 ON 09 APR 2003)
 SET COST OFF

FILE 'HCAPLUS' ENTERED AT 17:34:41 ON 09 APR 2003

E DOMB A/AU
 L1 236 S E2-E11
 E POLYSACCHARIDE/CT
 L2 42339 S E13
 L3 22160 S E49
 L4 13077 S E50-E60

L5 E POLYSACCHARIDE/CW
L5 42342 S E3,E4
L6 15 S L1 AND L2-L5
L7 9 S L1 AND CARBOHYDRATE?/SC,SX
L8 19 S L6,L7

FILE 'REGISTRY' ENTERED AT 17:38:59 ON 09 APR 2003
L9 11 S 9004-54-0 OR 9036-66-2 OR 9057-02-7 OR 9004-34-6 OR 9005-80-5
E CELLOBIOS
E CELLOBIOS/CN
E CELLOBIOS/CN
E CELLOBIOS

FILE 'HCAPLUS' ENTERED AT 17:40:50 ON 09 APR 2003
L10 111986 S L9
L11 24 S L1 AND L10
L12 28 S L8,L11

FILE 'REGISTRY' ENTERED AT 17:41:46 ON 09 APR 2003
L13 1 S 528-50-7

FILE 'HCAPLUS' ENTERED AT 17:42:22 ON 09 APR 2003
L14 3754 S L13
L15 1 S L1 AND L14
L16 28 S L12,L15
L17 380619 S DEXTRAN OR ARABINOGALACTAN OR PULLULAN OR CELLULOSE OR INULIN
L18 76 S ALDARIC ACID
L19 32 S L1 AND L17,L18
L20 36 S L16,L19
L21 12 S L20 AND ?CATION?
L22 6 S L20 AND OLIGOAMIN?
L23 14 S L20 AND (AMIN? OR IMIN? OR AMID? OR CARBAM?)

FILE 'REGISTRY' ENTERED AT 17:46:41 ON 09 APR 2003
L24 9 S 56-87-1 OR 923-27-3 OR 70-54-2 OR 70-26-8 OR 348-66-3 OR 616-
L25 2 S 71-44-3 OR 124-20-9
L26 3 S 26913-06-4 OR 151-56-4 OR 9002-98-6

FILE 'HCAPLUS' ENTERED AT 17:47:15 ON 09 APR 2003
L27 59745 S L24
L28 10378 S L25
L29 12532 S L26
L30 185194 S SPERMINE OR SPERMIDINE OR LYSINE OR ARGININE OR ORNITHINE OR
L31 10 S L20 AND L27-L30
L32 17 S L22,L23,L31
L33 10 S L21 AND L32
L34 7 S L20 AND HYDROPHOB?
L35 1 S L20 AND AMPHIPH?
L36 5 S L34,L35 AND L21-L23,L31-L33
L37 16 S L21-L23,L31-L35 NOT L36
SEL DN AN 2 5 7 8 10 11 14 15
L38 8 S L37 AND E1-E24
L39 13 S L36,L38
L40 8 S L37 NOT L39
SEL DN AN 6
L41 1 S L40 AND E25-E27
SEL DN AN L40 3
L42 1 S E28
L43 15 S L41,L42,L39 AND L1-L8,L10-L12,L14-L23,L27-L42

FILE 'HCAPLUS' ENTERED AT 17:57:21 ON 09 APR 2003
L44 221 S L1 NOT L43
SEL RN L43

FILE 'REGISTRY' ENTERED AT 17:58:28 ON 09 APR 2003

L45 166 S E29-E194
L46 8 S L45 AND L9,L13
L47 23 S L45 AND UNSPECIFIED
SEL RN 8 9 11 13 15 16 17
L48 7 S E195-E201

FILE 'HCAPLUS' ENTERED AT 18:01:11 ON 09 APR 2003

L49 42869 S L48
L50 24 S L49 AND L1
L51 10 S L50 AND L43
L52 15 S L43,L51
L53 14 S L50 NOT L52
L54 385545 S L14,L49,L17,L18
L55 36 S L1 AND L54,L2-L5
L56 15 S L55 AND L43
L57 21 S L55 NOT L56

FILE 'REGISTRY' ENTERED AT 18:08:06 ON 09 APR 2003

L58 8 S L46,L48
L59 16 S L47 NOT L58
L60 1 S L59 AND DEXTRAN
L61 142 S L45 NOT L46-L48,L58-L60
L62 7 S L61 AND L24-L26
L63 99 S L61 AND N/ELS NOT L62
L64 10 S L63 AND (C2H8N2 OR C4H12N2 OR C4H13N3 OR C6H16N2 OR C9H24N4 O
L65 8 S L64 NOT DIMETHYL
L66 2 S L64 NOT L65
L67 1 S 107-15-3
SEL RN L24
L68 3836 S E202-E210/CRN
L69 2 S L68 AND L61
L70 193 S L68 AND PMS/CI AND HOMOPOLYMER
L71 9 S L70 AND 1/NC
L72 25 S L63 AND PMS/CI NOT L69
L73 2 S L72 AND (C5H10N2O OR C6H12N2O)
L74 20 S L65,L67,L69,L71,L73

FILE 'HCAPLUS' ENTERED AT 18:19:04 ON 09 APR 2003

L75 47956 S L74
L76 417062 S L2-L5,L54
L77 2495 S L75 AND L76
L78 23412 S L76 AND (OLIGOAMIN? OR SPERMIDINE OR SPERMINE OR LYSINE OR OR
L79 23633 S L77,L78
L80 10813 S L76 AND (PEPTIDE OR POLYPEPTIDE)
L81 32743 S L79,L80
L82 859 S L81 AND HYDROPHOB?
L83 120 S L81 AND AMPHIPHIL?
L84 945 S L82,L83
L85 332 S L84 AND ?CATION?
L86 99 S L85 AND ?SACCHARIDE?
L87 20 S L86 AND CHAIN
SEL DN AN 3 8 9 17 19
L88 5 S E211-E225 AND L87
L89 62 S L85 AND L27-L29,L74
SEL DN AN 8 12 23 25
L90 4 S E226-E237 AND L89
L91 20 S L56,L88,L90
L92 20 S L91 AND L1-L8,L10-L12,L14-L23,L27-L44,L49-L57,L75-L91
L93 20 S L92 AND (?SACCHARIDE? OR ?AMINE? OR ?IMIN? OR ?AMID? OR ?LYSI
L94 15 S L92 AND (?NUCLEIC? OR ?NUCLEO? OR DNA OR RNA OR ANTISENSE OR
L95 20 S L93,L94

FILE 'HCAPLUS' ENTERED AT 18:51:49 ON 09 APR 2003

L96 43 S L1 AND P/DT
L97 37 S L96 NOT L95